

THE EXPERIENCE OF HOME DURING MODERNIZATION

by

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Submitted in accordance with the requirements for the degree

DOCTOR LITTERARUM ET PHILOSOPHIAE

in the subject

PSYCHOLOGY

at the

UNIVERSITY OF SOUTH AFRICA

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JUNE 1995

ACKNOWLEDGEMENTS

I would like to express my sincere appreciation to the following persons and institutions:

The Human Sciences Research Council (HSRC) for the financial assistance that made this project possible.

Professor H.G. Viljoen for his comments and guidance.

The personnel of the HSRC who contributed with advice from their various fields of expertise, in particular colleagues in the then division for Environmental Psychology and Herma Huizamen for her excellent services as librarian.

Mr Cas Coetzee of the University of South Africa for his enthusiastic help with the data analysis and his innovative contributions in this regard.

Mr Chris van Vuuren for sharing his intimate knowledge of the NDebele people. The "how to," "where to" and "what not to" that he provided were indispensable to the fieldwork.

The South NDebele people who participated in this study deserve special recognition for their willingness to open their hearts and homes. Ikosi Mapoch, his advisers and chiefs for their friendly welcome and for providing me with able guides in the rural areas of Kwa NDebele.

Messrs Van der Westhuizen, Van Staden and the brothers Marule of the Kwa NDebele Utility Company for sharing with me their experiences in house construction and marketing in Kwa NDebele.

Messrs Van Rooyen of Ekangala, Bronkhorstspuit; Engelbrecht and S. Motaung of Kwa Guqua, Witbank; H. Viljoen and S. Motaung of Atteridgeville for providing assistance with various stages of the fieldwork.

Mrs D. Snyman for her tireless efforts to make my own version of the English language understandable, her valuable suggestions and for many hours of editing.

My wife, Deirdre, for all her support and children, Marieke, Lize and Izak-Schalk for their sacrifices. My parents who inspired me and always gave me the freedom to express and be myself.

The Lord, without whom I am nothing.

ABSTRACT

The housing problem in South Africa is complicated by the cultural diversity and the rapidly changing nature of the population. This indicates a need for research to help to determine "what appropriate housing is" for various sectors of the South African population. Social researchers and design professionals therefore have to combine their efforts to provide house designs that will be appropriate to the housing needs and values of a variety of future occupants.

This study focuses on the impact of rapid change in the sociophysical environment (modernization) on people's experience of the quality of their relationship with their home environments. An approach is proposed through which groups of individuals, who share similar needs and requirements regarding their housing, can be identified for inclusion in a process of participatory design. A theoretical framework is developed to account for the variety of perspectives of participants (users, researchers and design professionals) in the design process. Through application of the theoretical framework, a novel approach to the determination of "what to design for whom" is developed. The "modernity fit" concept is introduced to describe the quality of the relationship between people and their housing in terms of a rating of the modernity of both human and housing characteristics. It is proposed that the quality of the relationship or "fit" between the modernity of human characteristics and the modernity of the physical characteristics of the house influences people's experience of their houses.

Results of this study indicate that the "modernity fit" concept opens up new avenues for research to assist in the design of housing in developing countries.

KEY TERMS

Experience; Evaluation; Perception; Preference; Health.

Home; Housing; Environment.

Modernization; Culture; Social change.

Design; User participation in design.

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CHAPTER 1: INTRODUCTION: STATEMENT OF THE RESEARCH PROBLEM

The importance of appropriate housing to social stability and psychological health indicates that social research should assist in the design of houses for the large-scale housing programme needed in South Africa. Research on and design of housing in South Africa, however, face some complex problems. Two of these are focused on in this study.

1.1 WHAT TO DESIGN FOR WHOM IN SOUTH AFRICA?

Due to the multi-cultural composition of the population, the design of houses in South Africa should be appropriate to the social and cultural needs of a variety of users. It is also important that the quality of the relationship (or "fit") between people and their housing should be maintained during rapid social and cultural change (modernization). The sociocultural diversity of the population therefore necessitates research into "what to design for whom".

Houses should be designed in such a way that they can become "homes". "Home" refers to the highly valued meaning that the house has for its occupants. Social and cultural values, norms and practices of the users are important to the meaning of "home" for the occupants. This meaning depends to a large extent on peoples' experience of living in the house. If the house supports the life-style, values and practices of the occupants, they will experience harmony, balance or "fit" between themselves and their houses. To ensure that users experience their houses as "homes", the design of housing should be based on social research which accounts for changing (modernizing) housing needs and values.

1.2 RESEARCH ON HOUSING: A PROBLEM OF MULTIPLE PERSPECTIVES

Research on housing is hampered by the lack of an integrated theory of the relationship between people and their housing. Social researchers and design professionals approach the relationship from different theoretical perspectives. The result is that the findings of social research are often not applied in design. Furthermore, during cross-cultural design, the users themselves have to be involved in the design process (Altman & Chemers, 1980). Users, social researchers and designers have their own perspectives on what the quality of housing should be and how it should be achieved through design. For the design to succeed, the perspectives of each of these groups have to be integrated.

This study aims to address these two problems (which are discussed in detail in chapter 2) in the way described below.

Firstly, a theoretical framework is developed (chapter 3) for the study of the relationship between people and their housing. This framework aims to account for the differences between the perspectives of users (various groups of users), researchers and designers.

The framework attempts to account for both a view of the relationship between person and environment as independent entities and a view of the relationship in which person and environment are seen as interdependent aspects of a holistic unity. The contextual approach to environmental psychological theorizing and research (Stokols, 1987), and in particular, the concept of "variable interdependence" as it is applied to the relationship between person and environment, are used for the formulation of the proposed theoretical framework.

What the "objective reality" is and how it is perceived by users, researchers and designers is of obvious importance in the design process. The proposed framework emphasizes the role of

interaction between individuals and social groups in the process of defining "objective reality" for the members of these groups. Furthermore, interaction between individuals and social groups plays an important role in the process through which the physical characteristics of houses modernize. A number of sociopsychological processes are important in this regard. The focus in this study falls on the modernization process as an all-encompassing process of sociocultural and environmental change. Modernization is seen as a process through which individuals and social groups develop newly shared attitudes and social identities. Through this process the characteristic features of the houses of these people also change.

Secondly, an approach (chapter 4) to the identification and grouping of people who share particular values, needs and requirements with regard to their housing, is proposed. In the multi-cultural South African context, there is a need to identify various groups of people who share particular sociocultural characteristics. Those characteristics, which have a bearing on the physical design of the house, are especially important. It is these physical aspects of the design that should be considered during the planning, design and development of large-scale housing programmes.

The "modernization" and "modernity" concepts are used as basis for the proposed approach to the determination of "what to design for whom." The concept "modernity fit" is introduced. This concept is used to describe the relationship between the modernity of the physical characteristics of current housing (modernity of house) and the modernity of subjective sociocultural characteristics (attitudinal modernity). It is proposed that various groups of people can be identified in terms of "modernity fit," for example a variety of fit groups such as "modern fit" or "traditional fit" and a variety of non fit groups such as in the case where the house is either more or less "modern" compared to the attitudinal modernity of its occupants. It is expected that membership of a particular "modernity fit"

group will be related to an individual's "experience of home." "Modernity fit" can therefore be used as the basis for an approach to the identification of people for particular design interventions. People with shared sociocultural characteristics, and similar needs and requirements with regard to housing can be identified. To ensure the appropriateness of the house designs, these people can then participate in the design process.

The utility of the proposed theoretical framework as applied in the proposed approach is tested in the empirical part of the study (chapters 4 and 5). The "experience of home" of a sample of South NDebele households, which are considered to be at different stages of the modernization process, is investigated.

Various indexes are developed to measure aspects of the relationship between the modernity of the person and the modernity of the house.

In the concluding chapter (6), the practical utility of the proposed framework as applied in the proposed approach for the determination of "what to design for whom" is discussed.

CHAPTER 2 THE NEED FOR PSYCHOLOGICAL RESEARCH INTO HOUSING IN SOUTH AFRICA

2.1 THE SOUTH AFRICAN HOUSING PROBLEM

2.1.1 The housing shortage

In South Africa, as in many other developing countries, there is a great shortage of housing for large sections of the population. The provision of housing for the urbanizing black community is one of the most daunting problems facing the present South African government. Whole communities living on the periphery of metropolitan centra, mostly in inadequate self-constructed houses, need to be provided with more permanent housing. Since 1990, South Africa has embarked on a process of radical social and political change that will undoubtedly involve changes in the governmental housing policy. In view of the large shortage of housing, there is a need for large-scale social (community-based) housing programmes.

A growing number of public and private institutions are concerning themselves with the housing problem, including regional Housing Boards, The Urban Foundation, The South African Housing Trust, The Development Bank of Southern Africa, commercial banks and other financial institutions, private developers and employers. The magnitude of the industry developing to solve the housing shortage, is an indication of a growing impetus in the provision of housing. In view of the extent of the South African housing shortage and because of financial constraints, many so-called "low-cost" designs and "quick" construction methods are promoted by the South African building industry as solutions to the housing problem.

The influence that housing may exert on the users should, however, be explicitly considered in the design of new housing. It is critically important that those involved in the provision of housing take the characteristics of the end-users of their

"products" into consideration. These characteristics include unique cultural backgrounds, values, needs and habits. There is a need to find a balance between the cost and number of housing units that can be provided on the one hand, and the quality of housing on the other. In South Africa, it is particularly important to ensure the cultural appropriateness of house designs. This indicates a need for social research to assist in the process of design and construction.

2.1.2 Quality versus cost of housing

Judicious utilization of funds available for housing will require a trade-off between the quality of houses and the size, cost per housing unit and number of housing units that can be provided. As far as the quality of housing is concerned, care should be taken that attempts to solve the housing shortage do not damage the relationship between individual members of society and their sociophysical milieu. This could occur, for example, through house designs that are inappropriate to the needs and social and psychological values of the future occupants.

The South African housing problem involves more than just a shortage of housing units. The close relationship between people and their houses (Dovey, 1985) makes it essential that those factors in design that contribute to the creation of a harmonious or balanced relationship between people and their housing, are identified and considered. Maintenance and improvement of balance and harmony in the relationship between person and environment is important to the individual's psychological and physical health and also to the health of society at large. The role and meaning of houses in the lives of the users and also in society in general (Altman and Werner, 1985), underline the importance of such considerations during the house-design process.

In the home one finds a confluence of all the factors that play a part in the establishment of the psychological, social and

cultural components and meanings basic to human existence. This is well summarized in an extract from Altman and Werner's (1985) introduction to a volume of articles on home environments: "Homes offer the physical amenities that sustain and support the residents, and they are often essential to the very survival of their occupants. Furthermore, homes are important centres for the development and manifestation of central psychological meanings. Individuals develop identities and regulate privacy in homes; families establish, grow and bond themselves into a unit in homes and often bond themselves to larger society through their homes. Thus, homes are the repository of central and essential psychological and cultural processes" (p. xix). Dovey (1985) says that it is through the home that a person is bonded to the world because it provides the basis for relationships that connect him with people (family, kin, community, society), place (orientation and identity), his past (memories that engender experiences of familiarity and continuity) and with his future (as a basis for autonomy and power from which to plan for growth and change).

Houses often provide an expression of the identity and status of the inhabitants (Lawrence, 1983). The physical features and appearance of a house often "communicate" or "show" to the world "who the people are who live here". Furthermore, houses sometimes "show" where people fit into the social structure. Similarly, how space is used inside the house expresses the social and cultural identity and "life-style" of the inhabitants (Rapoport, 1980). Numerous aspects of the life-styles of families, for example the location in the house of various domestic activities, are important to house design and may be different in various sectors of the population. These domestic activities include preparation of food, washing clothes, bathing and cleaning, sleeping and various social events such as weddings, funerals and visits with friends and family.

If the design of the house allows for the performance of the various social functions in the preferred way, the house will be

supportive of the family life-style and social practices and thus support a familiar social order. Houses that do not support the expression of the life-style, for example by inhibiting the performance of these social functions, will force the inhabitants to change their life-style more rapidly than they can adapt to.

The "cost" of forced change due to house designs which are insensitive to the needs of the family should be considered (Rapoport, 1980). The rate of change and the scale at which this change-inducing factor influences society, is important. In considering the impact of drastic social and environmental change on individuals, Back (1980) distinguishes between continuous changes, which he sees as predictable developments in the course of the life-cycle, and rapid, catastrophic changes. Marris (1980) emphasizes the importance of individual's conceptual organization and understanding of the physical and social surroundings in solving crises and problems of change. According to both authors, drastic social and environmental change (uprooting) disrupt the individual's meaningful bond with persons and places and his/her sense of security and self-continuity. Inappropriate house designs can be detrimental to stability and psychological and social health by disrupting peoples' attachment to persons and places (Rapoport, 1980; Duncan, 1985). It is therefore important to determine what appropriate housing is for each of the various sectors of the South African population.

Optimal utilization of available funds, therefore, requires the development of appropriate housing for the largest portion of those in greatest need. Fitting the right people to the right kind of house, for example matching people used to a more rural life-style with appropriately designed low-cost housing, may in the long run have the advantage that a larger number of "appropriate" houses can be provided. One of the most complex aspects of the South African housing problem is the determination of what appropriate housing is, or "what to design for whom".

2.1.3 Cultural diversity and cultural change in the South African context

Social and cultural factors are often emphasized in studies on the relationship between person and home environment. For example, Rapoport (1983) stresses that the physical features of newly-provided housing should be appropriate to the social and cultural practices of its users. Furthermore, notions such as "the congruence of designs with core cultural characteristics" (Rapoport, 1980) and "cultural appropriateness of designs" (Lawrence, 1983) refer to the characteristic balance, harmony or "fit" in the relationship between person and the designed environment that members of a cultural group share by way of informal consensus.

Anthropological studies indicate important differences in the traditional living environments of the diverse ethnic-cultural groups in South Africa (Hardie, 1980; Herbst, 1985; Van Vuuren, 1985). Furthermore, Hardie (1989) draws attention to the fact that in developing countries, traditional values are "modernizing" and that this impacts on the organization of physical environments such as houses. In the South African context, all the processes of cultural change can be seen to operate simultaneously. The rate of urbanization is increasing rapidly (Smit & Booysen, 1981; Hart & Hardie, 1987), and because of the ethnic-cultural diversity of the population, acculturation is taking place between different cultural groups, especially in the direction of the western-oriented culture of the hitherto dominant political and economic system (Rip, 1977; Schlemmer & Thaw, 1980; Gugushe, 1984; Edwards, 1978). Acculturation also takes place in the European section of the community in the direction of the African culture (Kruger, 1983). In populations experiencing rapid cultural changes, a diversity of combinations between the traditional and recently changed aspects of social and cultural identity could possibly develop. In South Africa, house designs should account for the diversity of housing needs and values of various sectors of the population.

2.2 THE PROBLEM OF RESEARCH INTO AND DESIGN OF HOUSING

The design of houses for the socioculturally complex South African population should be based on social research. Research should aim to identify the various groups of people who share particular social and cultural characteristics. To ensure that house designs for each of these groups maintain balance and harmony in the relationship between the people and their housing, those social and cultural characteristics that specifically have a bearing on physical housing features, have to be identified. A number of theoretical and methodological problems however, hamper research into the relationship between people and home environment.

2.2.1 A lack of theoretical integration

A variety of disciplinary and philosophical perspectives on the nature of the relationship between person and home environment can be found in theoretical and research literature. Two issues stand out as principal reasons for the disjointed nature of current literature: the multi-disciplinary nature of the field of housing research and a lack of theoretical integration (Altman and Werner, 1985; Altman & Rogoff, 1987; Tognoli, 1987).

Anthropologists, architects, town and city planners, urban geographers, historians, psychologists and sociologists all have an interest in, and have made theoretical and methodological contributions to, the study of home environments. Proshansky (1976) sees the strong interdisciplinary nature of environmental psychology as one of its most important characteristics. He notes that, when the emphasis is placed on the real-life physical setting in a sociocultural context that defines that setting, one is constantly forced to integrate one's efforts with those of other behavioural scientists. Altman and Werner (1985) emphasize the diversity of philosophical and disciplinary approaches to this topic. Lawrence (1987b) also follows an interdisciplinary approach in his analysis of theoretical and methodological issues

related to the analysis, design and use of residential environments. He refers to a number of cultural, social and psychological variables relevant to the design, use and meaning of houses.

Within the various disciplines, different philosophical points of departure and theoretical approaches are found. These differences add to the complexity of this field of study. With regard to environmental psychology in particular, several writers (Altman, 1976; Proshansky, 1976; Ittelson, 1976; Altman & Rogoff, 1987; Tognoli, 1987) have emphasized the need for the development of theory. According to Tognoli (1987), no theoretical approach has been put forward to integrate the disparate issues and themes investigated under the rubric of residential environments. Rapoport (1985) states that because of the lack of theory, studies on environment-behaviour relationships have not been cumulative and that, particularly in the study of home environments, there is a "daunting amount of diverse and un-integrated work" (p.255).

2.2.2 A lack of research into the design of houses in South Africa

Relative to the vast amount of literature on housing, little is known about the quality of the relationship between people and their residential environment in the South African context, and particularly about the influence of cultural change thereon. Although a great deal of research on social change in South Africa has been completed, the majority of these studies were performed by researchers from disciplines such as sociology and social anthropology. This topic did not receive much attention in research in the field of environmental psychology (Van Staden, 1986).

Environmental psychology in South Africa is still relatively young. Although a number of environmental psychological studies have been completed (Van Staden, 1986), only a few have focused

on the psychological aspects of housing (for example Butler-Adam, 1982; Claassen, 1981; Gouws, 1981; La Mont, 1982; Mashile, 1981; Schutte, 1984 and Viljoen & Van Staden, 1987). In an overview of research, Grieve (1987) identifies a need for studies that focus on the unique characteristics of housing in South Africa.

In view of the particular problems of housing in South Africa (as discussed in section 2.1 above), there is a need for a theoretical model and a research approach that will be applicable to research into and design of housing in the multi-cultural, rapidly changing South African context.

2.2.3 The need to involve future occupants in the design of their houses

A diversity of housing needs and values exists in the South African population due to the complexity of the culturally diverse population and the effect of rapid social and cultural change. To ensure that designs of new housing maintain the quality of the relationship between "person" and "home environment", future occupants should participate in the design of their houses.

In South Africa, such direct involvement is limited to the very poor and the very rich. The very poor have to use site-and-service schemes or build for themselves but are constrained by what they can afford, while the very rich can afford to employ an architect to consult with and design for them. A large section of the South African population, particularly the rapidly urbanizing section, has to depend on governmental or other institutional help to acquire housing. These people often have to live in houses designed by architects, professional designers and developers who often do not share and understand their particular housing needs, values and domestic practices.

Various authors (Altman & Chemers, 1980; Rapoport, 1980; Lawrence, 1982, 1987b) emphasize the need to combine the inputs

of users and professionals in the design process, especially during cross-cultural design. Altman and Chemers (1980) stress the importance of combining the inputs of environmental designers, researchers and consumers to ensure the cultural relevance or appropriateness of designs. They discuss how sensitivity to cultural/environmental relations can be applied at several stages of the design process.

- (i) The first stage of design involves the assessment of needs and cultural practices of the users. They emphasize the involvement of the user at this stage of the design process, specifically in an investigation of values, norms and behavioural practices.
- (ii) The second stage entails the development of alternative design solutions in which the occupants/users can again provide important inputs to ensure cultural compatibility of the design.
- (iii) The third stage consists of the actual construction and initial use of the environment. At this stage of design, knowledge of cultural differences between the new and known environments will indicate where education regarding the new environment may be needed.
- (iv) The last stage of the design process, to which the users can again contribute, includes the evaluation of how well the environment works (Altman & Chemers, 1980).

During participatory design, a variety of perspectives of participants in the design process (researchers, designers, and various groups of users) therefore have to be integrated, or some form of consensus has to be reached about the intended meanings and functions of the physical features of future housing. Through communication and negotiation, users, researchers and designers attempt to reach consensus on a description (in objective terms) of the physical parameters of a future house.

The design solution, as outcome of the participatory design process, should enable the designer to provide a culturally appropriate design. This will in turn enable the user to develop the designed environment (through personalization and use) into a highly valued, sociophysical living environment or "home".

2.3 THE PROBLEM OF INTEGRATING THE PERSPECTIVES OF VARIOUS PARTICIPANTS IN THE DESIGN PROCESS

To date no theoretical framework has been put forward which accounts for, or attempts to integrate, the diversity of perspectives of participants involved in a process of research on and design of housing (Lawrence, 1987b). The primary differences between the perspectives of the various participants are discussed below.

2.3.1 Differences between professionals and users

A number of important differences between professionals (researchers and designers) and users may inhibit co-operation and communication during the design of new housing.

(1) *Differences in perception*

Environmental perception is largely influenced by images and ideals (Ittelson, 1976; Fisher, Bell & Baum, 1984; Viljoen, 1981). Different aspects of the sociophysical environment may therefore be emphasized or disregarded in a selective way. This will result in different (person dependent) "perceived environments" for each of the participants (users, researchers and designers) in the design process. The perception of physical properties and measurable attributes of the housing environment is influenced by social norms, values and practices. The occupants of an environmental setting may, as a result, only partially share the "sociophysical reality" with the researcher.

Rapoport (1977, 1982) distinguishes between the perceptual and associational aspects of the environment. This distinction is based on the existence of a hierarchy of levels of meaning associated with any object in the physical environment. This hierarchy of meanings ranges from the concrete to the symbolic. He argues that designers tend to stress perceptual (more concrete) aspects while the users of environments stress associational (more symbolic) aspects of the environment. The researcher or designer may, for example, consider a certain observable feature of a house (for example the amount of sunlight penetrating a room) as important. The occupant may not regard this as an important physical property. As such it is a physical characteristic related to the size and position of windows with respect to the sun at various times of day. The importance of this physical characteristic in the user's description of the physical features of his house will be determined by a number of factors, inter alia the relative value he or she attributes to natural energy for heating and lighting, and various other factors related to climatic conditions. Similarly, the occupant may perceive observable (physical) features or signs and "symbols" of social status that the researcher may not "see". An example can be found in the South NDebele culture. The presence of low, demarcating walls around the main hut of a kraal (*isirhodlo*) signifies the independence of the male head of the household. It is a symbol of status understood by members of the culture but obscure to the outsider. Furthermore, even if this design characteristic is perceived to be important by the researcher or designer, the copying of such a design feature in all new houses would result in the loss of its function and meaning for the user.

Rapoport (1977, 1982) maintains that the meaning of environments, and specifically home-environments, are often generated through personalization and may differ markedly from the meanings designers intend a building to have. Personalization of the physical environment plays an extremely important role in the meaning of the home to its occupants because of the personal,

emotional and symbolic connotations with the home-environment. Rapoport (1982) concludes that any investigation of the meaning of home must therefore be based on the occupants' perceptions and experiences and on the values and meanings they attribute to the home. Participatory design must, however, also account for the designer's need for information on the perceptual (concrete) aspects, in particular how these aspects are related to the meaning of "home" for the occupants.

(2) Differences in evaluation of the environment

Weidemann and Anderson (1985) note that the researcher has to evoke and interpret the evaluation of home as it occurs naturally for the occupant. The occupants' understanding and description of their own relationship to the environment, and of the various physical, behavioural and psychological factors which contribute to the nature of that relationship, are incomplete. Although the user is aware of a number of experiences, feelings or evaluations toward different aspects of the environment, he or she may not be able to give a complete account of all the factors that influence or contribute to that experience. According to Proshansky (1976), the lay person's conceptual categories for analysing the complexity of the situation are assumed to be inadequate for a full understanding of all the factors and variables involved. The person may also not have the words and concepts necessary to communicate it.

The relationship between subjective evaluations and meanings and the overt descriptions of these aspects have been considered by psychology researchers with a phenomenological approach. The discussion by Van Vuuren (1989) of the work of Giorgi (1986) on psychology as a descriptive science, is exemplary. According to the phenomenological approach in psychology, user descriptions of perceptions, experiences and meanings are materials from which meanings must be further clarified by professionals. Phenomenology takes phenomena to mean "how things and events are for the consciousness that beholds them and not how they are in

themselves" (Van Vuuren, 1989, p.65). This implies that the point of departure should be the facts of an individual's experience, from which meanings can then be clarified. The individual's descriptions (expressions) of experience convey meaning because they contain words and sentences that are capable of relating a situation as it exists for them. However, the phenomenological approach in psychology emphasizes the view that user descriptions provide an incomplete account of meaning.

According to Van Vuuren (1989) the person cannot describe all aspects of meaning as it exists on the psychological level. Individuals infer the structure and meaning of things from their experience of all that happens in the sociophysical context. Various psychological processes are involved in the inference of meaning. Van Vuuren comments that our psychological life is projected through, and does not lie in, the descriptions. The scientist must, therefore, through inference, come to an understanding of what lies beyond the subjects' description of their understanding or knowledge (Van Vuuren, 1989).

In summary, this means that the user's descriptions of "subjective" perceptions, attitudes and meanings pertaining to housing (for example, various meanings attributed to "home") are mere reflections of the subjective aspects the researcher proposes to investigate. These require further interpretation by the researcher or designer.

(3) *Cultural differences*

In the South African situation, researchers and designers often represent western and European social and cultural values and views. The majority of users in need of housing often represent one of a number of African ethnic-cultural groups.

Hardie (1989) spent many years in South Africa doing research, inter alia on settlement patterns of the Tswana. He remarks on his experiences as social researcher "from the developed world"

with the "developing world" as follows: "One lesson, perhaps the most profound, is that our approaches and even our "science" are ethnocentric and, when transferred to other contexts, are found wanting" (Hardie, 1989,p.154). From a cross-cultural psychological perspective, Gilbert (1989) presents evidence about the existence of a number of "dislocations and discontinuities" (p.92) which emerge from the practice of psychology in a third-world environment.

(4) *Different ways of understanding the sociophysical world*

The differences between the theories of the physical world held by professionals (researchers and designers/scientists) and users (lay people) of the environment exemplifies the difficulty of achieving consensus on the intended physical features of the house.

Ittelson (1989) discusses the relationship between scientific and folk theories. According to him, both refer to a system of assumptions, considered to delineate a range of phenomena which constitute the scope of the "real and the possible". He states that these two types of theory refer to two sets of phenomena: a domain of abstract phenomena defined by scientific theory and a domain of everyday phenomena defined by folk theory. He sees folk theories as informal, largely implicit, socially constructed and validated by informal consensus. Folk theories do not explain the world of everyday experience but rather define it. "This (the world of everyday experience defined by folk theories) is the world of shared experiences and actions, of people we interact with and of natural places and constructed settings we inhabit, perceive, and modify" (Ittelson, 1989,p.72).

Scientific theories are defined as : " ... a system of assumptions, accepted principles, and rules of procedure devised to analyze, predict, or otherwise explain a specific set of phenomena" (Ittelson, 1989,p.73). Scientific theories are not about the everyday phenomena of ordinary experience but rather

relevant to these everyday phenomena. In Ittelson's view scientific theories are about themselves, they are about the phenomena that they define. These phenomena cannot be encountered in the world of everyday experience or in any place outside the theory.

Ittelson (1989) states further that scientific and folk theories can communicate only to the extent that they share a common set of assumptions or are embedded in the same domain of discourse. They can only communicate to the extent that their separate understandings of the real and the possible overlap.

The participatory design of houses can be seen as a domain in which various theories or understandings of the sociophysical world meet. Houses contain an expression of "folk theory" as described by Ittelson. Houses are expressions of sociocultural and individual identity and represent, in physical form, the occupant's view of the sociophysical world. During participatory design, the research and design professional's scientific theories are attempts to explain and predict the sociophysical world which would be best suited to the needs and characteristics of the future inhabitants.

The perspectives of professionals and users differ inter alia in these four areas. It is proposed that a conceptual framework that accounts for these diverse perspectives on the sociophysical world will improve communication during participatory design.

2.3.2 The lack of applicability of the findings of social research in design of houses as a result of differences between social researchers and design professionals

There is an urgent need for social researchers and design professionals to combine their efforts to ensure that the process of house design and construction maintains and improves the quality of the relationship between people and their housing.

However, social research findings are often criticized for their lack of applicability as far as house design is concerned (Sime, 1986; Lawrence, 1987b). Particularly important in this regard is the criticism levelled at environmental psychological research for overemphasizing the subjective or perceived environment and underemphasizing the "physical environment". Designers, on the other hand, are criticized for their tendency to overemphasize physical aspects and to underemphasize the social and psychological aspects of housing (Proshansky, 1976; Carp & Carp, 1982; Stokols, 1984; Sime, 1986; Lawrence, 1987b).

In his discussion of the "applicability gap," Lawrence (1987b) comments on social research which has included the objective physical aspects of the environment. He quotes examples of studies that attempt to identify "user needs" for specific physical elements or features, and studies that attempt to identify "design guidelines," such as lists of physical elements required by particular groups of people. In his view, results provided by these studies are still not applicable in design because the identification of "needs," "patterns" (for example, in the use of space) or "design guidelines" are generalizations which are inappropriate to specific design problems.

Lawrence (1987b) maintains that failure to consider how the information generated can be used by diverse groups of people (designers, users) during the design process, illustrates a lack of understanding of the epistemology of design. Lawrence stresses that house designs are related to a synthesis of specific geographical, social, cultural, economic and political parameters which are context dependent and cannot be generalized. Each house ought to respond to the specific site, the particular people, their wares, activities and other contextually defined parameters. Lawrence maintains that generalized design guidelines are of limited use to people (users and designers) involved in the design process.

In his emphasis on an idiographic approach, he also emphasizes that consideration should be given to the variety of perspectives of the participants (including designers, users and the researchers) involved in the design process. According to Lawrence (1987b) lists of design guidelines are of limited use during the design process because the studies that generate these do not consider how the data can be used by diverse groups of people during the design process. Sime (1986) criticized Canter (1977) for the same reason. According to Sime, Canter emphasizes research techniques without indicating how the knowledge generated should be included in design. To him this approach of researchers seems to indicate that " ... once (architects are) armed with a research technique, the design will take place by default" (Sime, 1986,p.56).

In an attempt to bridge the applicability gap, Lawrence (1987b) emphasizes the need for a conceptual framework that integrates architectural design research and practice and social sciences research, and which can be shared by the various participants in the design process. He states that ".... it is possible to comprehend and design for inhabitants by using a contextual approach that examines the physical setting, the ways diverse groups of people interpret that setting, and dwelling practices in a complementary way" (Lawrence, 1987b,p.273). Such an approach "... enables the housing researcher to understand and mediate between the aspirations and preferences of the inhabitants and the members of the professional team (including architects, housing administrators and consultants)" (Lawrence, 1987b,p.273). Sime (1988) describes the approach of Lawrence as "research as design" in which the definition of research problems and the formulation of alternative design solutions are interrelated.

This study will attempt to apply these suggestions of Lawrence to the housing problem in the South African sociocultural context. A theoretical framework will be proposed that attempts to account for the differences between various perspectives of

the participants in the design process. Such a framework should account for the fact that participants not only differ in their subjective evaluations of the environment but also perceive different aspects of the physical environment.

2.4 THE ROLE OF THE SOCIAL RESEARCHER

2.4.1. The social researcher as mediator

In the integration of research and design processes, as proposed by Lawrence (1987b), the role of the social researcher is defined as that of mediator. The integration of the variety of perspectives of the team of participants involved in the design process thus becomes part of the research problem of the social scientist.

The role of mediator will demand that the social researcher attempts to understand and move between the cognitive frameworks of each of the participants as well as his/her own. The social researcher has to translate the relevant social and psychological values, needs and preferences of future users into terms which meet the requirements of the designer. The designer needs information on the intended functions and meanings of the physical spaces and how they should be facilitated and expressed through "objective" designed features of the future house.

This extremely complex process will require empathic abilities akin to those required of clinical psychologists. In these terms of reference, the process of participatory design can be compared with a group therapeutic process in which the psychotherapist (social researcher) acts as a facilitator to the process rather than a consultant who provides the content or solutions (house designs).

In order to understand and structure the negotiation process, there is a need for a theoretical framework which takes into account the variety of subjective perceptions and evaluations of

the participants (users, researchers and designers).

2.4.2 The development of a theoretical framework

The first aim of this study is to propose a theoretical framework in which various perspectives of the relationship between person and environment can be accounted for.

Rapoport (1985) suggests that models describe how things work and that theories explain phenomena. Conceptual frameworks do not describe or explain - they order material, revealing patterns that help us think about phenomena. Conceptual frameworks are therefore more arbitrary than either models or theories. However, although a variety of conceptual frameworks may be valid with regard to any specific phenomenon, some fit evidence better, are simpler, but have more potential for further development or unify more material than others (Rapoport, 1985). This study does not attempt to construct a theory, or propose a model, but to propose a theoretical/conceptual framework in which diverse perspectives can be accounted for. Both the theoretical perspectives of professionals (researchers and designers) and the perspectives of the variety of users have to be considered. The proposed framework attempts to account for and promote sensitivity to the diversity of folk theories and conceptualizations of the real world and the diversity of scientific theories relevant to the conditions of human existence.

2.4.3 The development of a research approach applicable to the design of housing in developing countries

In the complex and rapidly changing South African sociocultural context it is important to determine who to provide with what kind of house. Two aspects of this problem are: which criteria must be employed for this matching process and how to limit the cost.

- In South Africa it is common practice to base the decision of who to provide with what kind of house on a test of financial means. The financial ability of the household, rather than the social and cultural values and needs that impact on the use of space in the home, is emphasized. This practice may result in inappropriate house design. Two families with the same income, a newly urbanized family (used to a rural life-style) and a family who have lived in an urban area for many years (highly modernized in terms of life-style), may qualify for the same low-cost house. This house may well be inappropriately designed for the life-style of one or both of the families. There is a need for a novel approach to the identification of groups of people in a particular community, in terms of those sociocultural characteristics which specifically pertain to physical housing features.
- In view of the size of the housing problem, in terms of numbers of people and the sociocultural diversity of these people, the research approach itself must be cost effective. Existing methods which attempt to involve the user in the design of the house often employ descriptive or qualitative methods such as structured or open-ended individual and group interviews, observation techniques and various simulation techniques (Lawrence, 1983, 1987b; Hardie & Hart, 1987). All these methods, however, share the limitation that they rely heavily on a qualitative methodology requiring skilled interviewers or observers and are, therefore, time and cost intensive.

The physical aspects of house design that will support important aspects of the social and cultural identity of the future occupants, have to be identified in a cost-effective manner. Some balance must, therefore, be found between a more quantitative approach that will be necessary due to the size of the target population, and a more qualitative and descriptive methodological approach.

As the second aim of the study, an approach to the identification of groups of people who share particular values, needs and requirements with regard to their sociophysical living environments is proposed.

It is proposed that various groups of people can be identified in terms of the fit or balance between the modernity of the physical aspects of current housing and the psychosocial modernity of the inhabitants (modernity fit). In relatively stable sociocultural settings, the culture concept describes the characteristic relationship shared between people and their sociophysical environments. In societies characterized by rapid change, the modernization concept can be used to describe the process through which people develop new patterns in their relationships to the sociophysical environment.

Once groups of people in a particular community have been identified in terms of the modernity fit between their current housing and the sociocultural characteristics, representatives from these groups can be involved in a process of participatory design (see 2.2.3 above). It is expected that house designs will thus reflect the particular values and needs of the various groups of users more closely.

The various theoretical and conceptual frames of reference, points of departure and objectives of users, researchers and designers inhibit their co-operation during the design of housing. This chapter analyzes the fundamental philosophical views which underlie two directions in research on the relationship between the person and the residential environment. It proposes that an understanding of the relationship between these philosophical views will help in formulating a theoretical framework which can be shared by researchers and designers. The perspectives of users could also be accounted for in such a framework.

A contextual approach and the concept of "variable interdependence" between person and environment, proposed by Stokols (1987), is used in the theoretical framework. Researchers and designers seem to focus on different phenomena that can be related to different contexts in which the relationship between person and environment can be studied. Some phenomena emphasize the interdependence of person and environment while others emphasize the independent aspects of person and environment.

The view taken of the level of interdependence of person and environment seems to underlie different treatments of the physical environment in research and design. Differences between the perspectives of researchers and designers result in differences in the amount of attention paid to the physical and, in particular, the "objective" environment.

The relativity of what "objective", "perceived" and "subjective" aspects of the sociophysical environment are, is highlighted by the fact that, in research, the relationship between person and environment has to be described by "someone". Members of social groups, for example, collectively ascribe meaning to the

sociophysical environment and to themselves as part of it. Social groups also ascribe meaning to themselves in terms of their relationship to the environment, thus defining themselves apart from it. In this way social groups "define" "objective" reality for their individual members and thus mediate in the relationship between person and environment.

Through this emphasis on the (social) relativity of the person-environment transaction, the framework accounts for various perceptions of both "subjective" and "objective" features of the sociophysical environment. Differences between the "perspectives" of users, researchers and designers can thus be accounted for.

The proposed theoretical framework also considers how the aspects of the relationship, focused on by researchers and designers respectively, are interrelated. The psychosocial processes involved in the person-environment transaction are discussed and included in the framework. These processes are considered to play an important role in the establishment of the subjective values and meanings that users attribute to "home" and to the physical aspects of "houses" which communicate or otherwise express these values and meanings.

Modernization is discussed as an all-encompassing process of sociocultural and environmental change that involves all of the above-mentioned psychosocial processes. All aspects of the proposed theoretical framework can be described in terms of the modernization process. The proposed theoretical framework is applied in a novel approach to the identification and grouping of people in terms of the "fit" between the modernity of the characteristics of the house and the psychosocial characteristics of people.

3.1 TWO DIRECTIONS IN RESEARCH: "HOUSING RESEARCH" AND RESEARCH ON "HOME"

The multi-disciplinary interest in the subject, and the lack of theoretical integration in this field of study, have given rise to a variety of theoretical approaches to the study of the relationship between a person and the residential environment. For this study the differences between the theoretical approaches of researchers and designers are the most important.

It is proposed that the differences between the perspectives of design professionals and social researchers respectively, can be related to differences between the fundamental philosophical assumptions which underlie two theoretical views of the relationship between person and environment. These are the "interactional" and "transactional" views of the relationship found in environmental psychology. Reviews on theoretical and research literature done by a number of authors (Weidemann & Anderson, 1985; Vischer, 1985; Tognoli, 1987; Sime, 1988), note the influence of two main philosophical trends or directions in environmental psychological research on the residential environment. These reviews indicate a shift in emphasis from a general deterministic approach to a more holistic approach. The "interactional" and "transactional" views of the relationship between person and environment (Altman & Rogoff, 1987) seem to capture the central assumptions underlying the two directions in research. The influence of these views is reflected in the differences between studies placing emphasis on the investigation of "house" as opposed to those emphasizing "home" (Dovey, 1985; Tognoli, 1987; Lawrence, 1987a).

The differences in philosophical views which underlie the two directions in research will be discussed before the differences between the perspectives of social researchers and design professionals are analyzed. As point of departure some definitions of the concepts "house" and "home" will be discussed.

3.1.1 Definitions of house and home

Lawrence (1987a) makes the distinction between "house" and "home" by referring to the "house" as a precise geometric composition of interrelated spaces and to "home" as that physical composition after it has been endowed with and transformed by psychological and social processes relating to its decoration, personalization and use. Dovey (1985) similarly distinguishes the concept of home (an experienced meaning) from that of house (a discrete variable which refers to the physical place). Weidemann and Anderson (1985) define "housing" as the physical environment that is seen by someone as "place for home". To these authors "home" is the sociophysical environment as seen or experienced by the individual.

In his definition of "home," Tognoli (1987) stresses that it is both a physical place and a cognitive concept. However, the actual physical features of the dwelling account for only a small portion of the definition of home, while social, cognitive, cultural and behavioural issues are emphasized.

The distinction between the concepts house and home (Dovey, 1985; Tognoli, 1987; Lawrence, 1987a) can be related to the different views on the relationship between person and environment (the interactional and transactional/holistic views). The interactional view treats physical environment (house) and behaviour (person) as independent entities. The transactional/holistic view, on the other hand, emphasizes the interdependence of the human and physical aspects (home).

3.1.2 Theoretical and philosophical foundations of the two directions in research

The fundamental theoretical assumptions which underlie the interactional and transactional views, as discussed by Altman and Rogoff (1987), are stated briefly before these theoretical underpinnings in studies on "housing" and "home" are discussed.

(1) *The interactional view of the relationship between person and environment*

According to Altman and Rogoff (1987), the interactional view is predominant in current psychological research and theory. A typical definition of psychology from this view is that it is: "... a field that studies the prediction and control of behavior and psychological processes" (Altman & Rogoff, 1987, p.15). In the interactional world view, psychological processes, environmental settings and contextual factors are treated as independently defined entities which determine behaviour and psychological functioning. Behaviour and psychological processes are usually treated as dependent variables, whereas environmental factors are treated as independent variables or causal influences on psychological functioning. In this view, the focus falls on the relationship between (one or more) antecedent predictor variables and consequent behavioural and psychological outcomes (Altman & Rogoff, 1987).

This approach was prevalent mainly in early environmental psychological research, which focused on the unidirectional (deterministic) effects of environment on behaviour. Later studies employed the analysis of multiple and interacting environmental variables to determine their combined effects on psychological functioning (Altman & Rogoff, 1987).

(2) *The transactional view of the relationship between person and environment*

Altman and Rogoff (1987) provide a prototype definition of environmental psychology from the transactional view: "... the study of the changing relations among psychological and environmental aspects of holistic unities" (p.24).

Two key assumptions of this view are that people and environments are integral and inseparable (holistic) units and that temporal qualities are intrinsic to people-environment relationships.

The unit of analysis is a holistic unity, such as an event involving persons, psychological processes and environments. The whole is composed of inseparable aspects that function simultaneously in such a way that they are mutually defining. The understanding of one aspect thus requires the inclusion of others in the analysis, since all coexist as intrinsic qualities of the whole. The transactional view therefore does not deal with relationships between separate elements that influence or determine each other. It rather seeks to understand the nature of the dynamic psychological processes which define the aspects of an event in terms of one another (Altman & Rogoff, 1987). It has as its point of departure the phenomenon or event and utilizes all applicable explanatory principles to account for the phenomenon.

The view of causation is described by Altman and Rogoff (1987) as pragmatic, eclectic and relativistic. Temporal processes are considered to be integral parts of events. Change is seen as an ongoing, intrinsic aspect inherent in any event and is thus a focus of transactional analysis. In this regard it differs from the interactional view which regards change as the result of the influence of separate elements on one another. The focus falls on the changing configurations of aspects of a holistic unity. An attempt is made to identify the regularities and patterns in these changing configurations. The results of this change are seen as variable, emergent and novel. Psychological events are, however, also seen as purposeful, intentional and goal-directed. Goals are seen to be flexible - they may change because the confluence of people, places and processes changes. Multiple goals can function simultaneously in any transactional configuration.

(3) *Summary: Different units of analysis and different views of the interdependence between person and environment*

The primary difference between the interactional and transactional views lies in their respective units of analysis.

In the interactional view, psychological processes, environmental settings and contextual factors are treated as independently defined entities, which can be studied separately. Person and environment are therefore seen as two independent and interacting entities. For example, environmental settings and contextual factors are studied as factors that determine behaviour and psychological functioning.

The transactional view takes the holistic unity as its unit of analysis. The "event" as target phenomenon, for example, reflects a holistic process-place unit of analysis (Weidemann & Anderson, 1985). The various aspects of events are seen to be mutually defining. Aspects are not separate elements which, together with the interrelationships between them, make up the whole. The event, as a whole, is an inseparable unity that can and should not be analyzed into constituent elements. The transactional view thus emphasizes the interdependence between person and environment and treats the relationship as a unity in which the person is regarded as an inseparable part of the environment.

3.1.3 Theoretical underpinnings of the interactional and transactional views in research on "housing" and "home"

A comparison of the different approaches to the assessment of environmental quality and the quality of the relationship between person and home environment reveals the influence of these theoretical views. Categorizing housing studies according to their emphasis on "housing" and "home", Tognoli (1987) draws attention to the influence of the different theoretical views. Two research trends are clearly reflected in methodological approaches to the study of the quality of the physical environment and the quality of the relationship between person and home environment.

(1) *Housing research*

According to Tognoli (1987), most housing research is concerned with objective measurement and description. Assessments of housing quality usually involve emphasis on user perceptions and evaluations as outcomes or results of environmental features and influences. The psychological investigation of housing mostly centres around the evaluation of housing through large-scale surveys intended to yield statements regarding residents' behaviours, cognitions and patterns of social activity. In his category of studies which focused on "cognitive evaluation of housing", Tognoli (1987), for example, includes studies that focused on perception, preference and satisfaction. In most studies on "housing," the assessment of environmental quality seems to involve the description of the environment as something separate from or independent of the person. This emphasis is typical of an interactional approach.

(2) *Research on "home"*

The category of studies of "home" mostly uses a holistic unit of analysis which is typical of the transactional view (Tognoli, 1987). This unit of analysis results in a drastically different theoretical treatment of the environment and approach to the assessment of "environmental quality." According to Werner, Altman and Oxley (1985) it is profitable to research "home" as a holistic transactional unity. Rather than analysing and researching the separate physical, psychological and interpersonal qualities of homes, the transactional perspective examines homes as integrated unities which contain the physical, psychological and temporal features. The home, according to these authors, is defined by, incorporates and gains meaning through the psychological and interpersonal events that occur in it (Werner, Altman & Oxley, 1985).

The qualities of "home" do not reside in either the house or the human occupants but in the quality of the relationship between

them. In the transactional view, environmental quality is seen as inseparable from the quality of the relationship. Studies from the transactional perspective, therefore, tend not to perform separate evaluations on the physical environment. Evaluations are mostly focused on the quality of the relationship as reflected in the symbolical values and meanings attributed to the specific settings by users.

Tognoli (1987) identified a number of meaning components of an "ideal concept of home" in the research literature, which provide some examples of "qualities" of the relationship. The assessment of the quality of "home" involves determining the extent to which users attribute these desirable or "ideal" meanings to their environments. "Home" has, for example, been studied as a meaning or symbol of:

- centrality, rootedness and place attachment;
- continuity, unity and order;
- privacy, refuge, security and ownership; and as
- self-identity.

The quality of the relationship is also studied in terms of the extent to which "home" provides a reflection of:

- social and family relations and
- the sociocultural context (Tognoli, 1987).

The transactional view emphasizes the interdependence between person and environment. The complexity of the constantly changing constellation of factors that influence the meanings of "home" to become what they are at certain points in time are stressed. Singular evaluations of "housing" are therefore avoided. Research from the transactional view accentuates qualitative and phenomenological methods of analysis, in which the user of the environment is seen as "co-investigator," to explore his or her own experiences of "home" (Ittelson, 1974; Sime, 1986, 1988; Lawrence, 1987b; Tognoli, 1987).

3.2 DIFFERENCES BETWEEN THE PERSPECTIVES OF DESIGN PROFESSIONALS AND SOCIAL RESEARCHERS RELATED TO DIFFERENCES BETWEEN THE THEORETICAL VIEWS

The differences in the theoretical and philosophical assumptions that underlie the interactional and transactional views of the relationship between person and environment seem also to underlie the differences between the approaches of social researchers and designers. These differences can be related to differences in their respective views on the level of interdependence between person and environment.

A theoretical framework that aims to be equally useful for both researchers and designers should account for different views of the level of interdependence between person and environment. A major problem is to integrate two opposing views of the level of interdependence between person and environment in a theoretical framework. How can a theoretical framework account for both a view of the relationship between person and environment (where these are treated as independent entities) and a view of a person-environment unity (in which the interdependence between person and environment is stressed)? To formulate such a framework some balance must be found between these opposing views of the interdependence between person and environment.

Before the framework can be discussed, the differences between the perspectives of social researchers and designers will be briefly considered.

3.2.1 The approach to the interdependence between person and environment in social research and house design

In the previous chapter (2.3.2), the lack of applicability of the findings of environmental psychological research in the design of houses was considered. This problem was related to the fact that social researchers and design professionals tend to focus

on different aspects of the relationship between person and environment, the subjective and physical aspects respectively. The amount of attention paid by researchers and designers respectively to the physical, and particularly the "objective" environment, exemplifies the differences between their perspectives of the relationship between person and environment (either as independent entities or interdependent aspects of a holistic unity).

A number of authors (Proshansky, 1976; Carp & Carp, 1982; Stokols, 1984; Sime, 1986; Lawrence, 1987b) note that psychological views of the relationship between person and the environment typically emphasize the social and interpersonal environment and the environment as internally represented, while very little attention is given to the objective physical environment. In more recent research, an almost exclusive reliance on user descriptions of the physical environment can be found. In studies, which focus in particular on the meaning of "home," it is the perceived aspects and the social and personal meanings of the environment that are accentuated. This emphasis can be associated with an approach to the relationship between person and environment, which stresses the interdependence between person and environment.

The overemphasis on subjective perceptions and evaluations of environmental psychological research appears to have resulted in too little attention being paid to the aspects of the physical environment themselves. The "objective" aspects (those aspects considered to be relatively independent of the subjective influence of individuals and groups) are underemphasized in most research on "home" (Carp & Carp, 1982). It is not only the perceptions but also that which is perceived that should be considered in holistic theoretical frameworks. Carp and Carp (1982) state that, in developing theoretical models, design innovations or intervention programmes, it is important to know whether the independent environmental variable is objective fact or a perception of it. These authors emphasize that some

attributes of the environment can only be studied through reference to the subjective appraisals by occupants, while others can be measured independently of the subjective interpretation of subjects or observers. They state that the physical environment also needs to be considered (described) in terms of its physical, enduring properties which are independent of the normative and symbolic associations that stem from behaviour. They produced evidence that some aspects of environment and behaviour are independent. They conclude from their findings that models of person-environment transactions should see the role of the objective environment, in terms of technical assessments of environmental quality, as complementary to person-characteristics in affecting environmental perceptions and evaluations.

The design professions: architects, urban geographers and town and city planners, on the other hand, stress the physical components while paying insufficient attention to the psychological and the social aspects. Designers seem to emphasize the physical aspects of the environment as independent of the perspectives of users (similar to an interactional view). With regard to design research, Lawrence (1987b) for example states: "... housing research should focus on not only the manifest, empirical variables but also on implicit, tacit structures of domestic life" (p. 275).

The move towards a transactional view of the relationship between person and environment can be associated with an attempt to address the problem of the relationship between the physical (concrete) and subjective (abstract) aspects of the relationship between person and environment. For example, in an article aimed at defining important issues in relation to both architectural design and research in environmental psychology, Sime (1986) proposes that the concept of "place" will redress the imbalance in emphasis on the physical environment ("space") between architecture and psychology.

In Sime's (1986) opinion, "place" implies a strong emotional tie between a person and a particular physical location ("space"). He uses the concept "place" to refer to "... a physical location which engenders a positive, satisfactory experience" (Sime, 1986, p.50). He also says that there are "places" which people would like to avoid.

Although the primary objective of the design professions is the creation of physically built space, he sees the design process as involving more than the creation of spaces. However, he argues that it is not possible (in absolute terms) to create "places" for users solely by manipulating the physical environment on their behalf because certain qualities of a "sense of place" are bound up in the role of a building in a person's life experiences. He therefore views the individual as a "co-creator of place" by endowing the physical environment with personal meaning through thought and action.

The definitions of "place" and "home" share two central points.

- Both include the physical environment (house and space) as a central component.
- Both emphasize the role of actions and experiences (cognition and affect) of users in the establishment of the meanings of "place" or "home".

Because the physical aspects of the environment, which are relatively independent of the perspective of the individual occupants, are particularly important to house design, there is a need for a theoretical framework that also considers the environment as an entity on its own. Lawrence (1985) for example, states that "... there is a need for more studies of the transactions between the material world of domestic space, objects and activities and the non physical world of ideas, symbols and images and how these transactions are modified through the passage of time" (p. 131). To be equally useful for both researchers and designers, a transactional theoretical framework for "home" (in which the interdependence between person

and environment is emphasized) should also account for those aspects of the physical environment considered to be relatively independent of the subjectivity of the human observers, as in the interactional view.

3.3 INTEGRATION OF ASPECTS OF THE TWO DIRECTIONS INTO A THEORETICAL FRAMEWORK

3.3.1. Independence versus interdependence of person and environment

Stokols (1987) maintains that the interdependence between person and environment should be seen as variable and notes that the level of interdependence depends to a large extent on the context of the phenomenon under investigation.

Before discussing the concept "variable interdependence," it is important to consider what a context is. The strategy of contextual theorizing and research formulated by Stokols (1987) is discussed briefly.

(1) *The contextual approach to environmental psychological theorizing and research*

According to Stokols (1987), the first task of contextual research is to identify the target phenomenon (target predictor and response variables). Secondly, the contextual variables thought to exert an influence on the target phenomenon must be identified. The accurate identification of the most crucial situational factors relevant to the target phenomenon is important to the adequacy of the contextual theory. Stokols uses the term "contextual validity" to refer to "the accuracy of a theory in specifying the pattern of relations among a set of target variables and one or more situational factors" (p.43). He refers to the set of crucial situational factors as the effective context of the target phenomenon. Because the range

of situational factors is potentially infinite and variable, the effective context is never completely known or specifiable.

Thus, in contextual research, the identification of the target phenomenon (the target predictor and response variables) precedes the determination of all the possible contextual moderators assumed to constitute the effective context of that phenomenon. The effective context of a phenomenon is therefore seen as an abstract notion or dimension, which consists of a selection of a number (one or more) of situational factors that are related to one another in that they collectively moderate the interaction between the target predictor and response variables.

(2) *The contextual approach applied to the relationship between person and environment*

The interactional and the transactional views of the relationship between person and home environment each emphasize a different kind of target phenomenon, as seen in the difference between the typical units of analysis (see section 3.1.2. (3)). Therefore the sets of contextual variables (effective contexts) can also be expected to differ. A distinction can thus be drawn between two "typical" contexts in which aspects of the relationship between person and environment are studied from the interactional and transactional views respectively. Before attempting to describe the "typical context" of the typical interactional and transactional phenomena, the concept "variable interdependence", as applied to the relationship between person and environment, should be considered.

(3) *Variable interdependence between person and environment*

Stokols' (1987) emphasis on the interdependence between person and environment as variable has important implications for the relationship between the interactional and transactional views of the relationship between person and environment. The concept "variable interdependence" provides a kind of "middle ground"

between the transactional approach, which assumes close interdependence between person and environment, and the interactional view, which treats person and environment as independently defined entities.

In his discussion of "variable interdependence between person and environment," Stokols emphasizes the importance of a distinction between partitive and composite ways of analysis of the relationship between person and environment.

"Partitive analysis view environments and their occupants as independent entities and emphasize the interactive effects of environmental and personal attributes on various criteria of behavior and well-being" (Stokols, 1987, p.56).

Composite analysis treats structured situations as the primary unit of analysis. People and places are seen as closely interrelated within a common behavioural setting or system. Composite analysis develops concepts for describing and classifying varieties of interdependence between people and their sociophysical environments. For example, the concepts "person-environment fit", "place identity" and "place dependence" are composite dimensions which are more covert, abstract dimensions of the relationship between people and their environments. These dimensions do not reside in either the observable features of the settings or in the demographic characteristics of the occupants (Stokols, 1987).

According to Stokols (1987), inappropriate use of partitive terms can fail to represent the systematic qualities of organized settings and thus convey an overly mechanistic view of the transactions between people and their environments. Composite concepts, on the other hand, can attribute a greater degree of organization and structure than actually exist in the target phenomenon. Stokols emphasizes that both possibilities should be investigated and, depending on the "target phenomenon" or the

focus of the investigation, the concepts used to describe the relationship between person and environment must reflect the nature of the interrelationship in terms of the partitive/composite distinction (independent or interdependent).

In housing research these concepts, (for example "house" (partitive) and "home" (composite)), are related to one another. In the formulation of a theoretical framework (as opposed to the investigation of a particular phenomenon), it is simply not enough to state that either this or that concept will be used. The manner in which the partitive and composite conceptions of the relationship between person and environment are related to each other must also be considered. The proposed framework specifically attempts to indicate how the "objectively measurable" aspects of the "house" (the typical research focus of designers) can be related to the subjective meanings of "home" (typically focused on by social researchers).

It is proposed that research that emphasizes "house" (interactional view) and "home" (transactional view) usually emphasizes one of two contexts in which the person-environment relationship can be studied.

(4) *Two contexts in which the relationship between person and environment can be studied*

The principal emphases or foci (reflected in typical target phenomena) of the two theoretical views of the relationship between person and environment seem to be the subjectively experienced (or "internally represented") and the observable (or "external") aspects of the person-environment relationship respectively. It is proposed that the effective context of phenomena described in partitive terms can be described as a "physical/external context" and the effective context of phenomena described in composite terms as a "subjective internal context".

(a) *Emphasis on the "external sociophysical context" in the interactional view*

The interactional view emphasizes that the person stands in a relationship to the environment as something apart from him. The person-environment relationship is therefore described in partitive terms. The phenomena investigated from an interactional view are typically described with partitive concepts, such as "space" and "house," in which the focus falls on separate physical environment and person entities.

Psychological studies mostly emphasize subjective (internal) perceptions and evaluations. Studies from the interactional view, however, treat these perceptions and evaluations as outcomes or results of the interaction between separate person and environment entities.

Vischer (1985), for example, describes how studies employing a "needs and preferences model" reflect an emphasis on housing as a separate entity. This entity exists independently of the user and influences or co-determines the psychological outcome. The psychological variables considered include aspects such as need for privacy, need for security or need for private open space. These needs are inferred from the statement of "wants" by users, obtained during questioning or inferred from observed behaviour (Vischer, 1985). Studies that focus on satisfaction (Weidemann & Anderson, 1982; Hourihan, 1984), happiness and morale (Carp, 1975; Horley, 1984) and well-being (Angrist, 1974) can be included in this category. The focus in these studies seems to fall on overt expressions or user descriptions of needs and statements of preferences. Only the results or outcomes of psychological processes are highlighted. It is the overt descriptions and expressions, which can be observed and verified because they are part of the physical or external "reality," that are the target phenomena in studies from an interactional view. These overt descriptions of subjective aspects such as perceptions and evaluations are aspects of the external

sociophysical context.

(b) *Emphasis on the "subjective sociophysical context" in the transactional view*

The phenomena investigated from a transactional view typically employ a holistic unit of analysis (for example, "home") which reflects a composite conception of the person-environment relationship. This view thus emphasizes that the person is a part of the environment. The subjective (qualitative) experiences of the occupants are accentuated, for example through the use of a concept such as "home," which is considered to be an experienced meaning (Dovey, 1985).

In this view the physical environment is seen as one of the irreducible components of the meaning of a place (Sime, 1986) and thus of "home". However, the focus falls on the transaction between the meanings of place ("home") and particular aspects of the physical environment and the functions of these aspects. The emphasis in research from this view, therefore, falls on (internal) subjective perceptions of the environment, rather than aspects of the physical (external) environment which are perceived by an individual or individuals.

In summary, the interactional and transactional/holistic views of the relationship between person and environment can be seen to focus on different phenomena and therefore to emphasize different aspects of the relationship between person and environment. These aspects appear to be related to the different contexts in which the relationship can be studied. The contexts are seen as different dimensions of the relationship between person and environment.

In the "physical/external context" the person stands in relationship to the environment. In this context the typical interactional units of analysis, and partitive concepts such as "house" and "space", are appropriate ways of approaching the

relationship.

In the "internal/subjective context" the person is viewed as an integral part of the environment. The typical transactional holistic units of analysis and composite concepts such as "home" and "place" are appropriate ways of approaching the relationship between person and environment in this context.

The proposed framework (Figure 3-1) reflects a transactional/holistic view in which the interactional view can be incorporated. The conceptual framework consists of two sets of concepts which categorize different aspects of the person-environment transaction.

- The horizontal axis shows a distinction between human aspects (body, and psychological/social/cultural aspects) and non-human aspects (natural and man-made physical environmental aspects).
- The vertical axis shows two contexts in which person-environment relationship can be studied. Each context can be related to a different theoretical focus or perspective on the relationship. The primary difference lies in the units of analysis and in the partitive or composite concepts used. Neither context nor dimension reflects the totality of the person-environment relationship. The phenomena studied in these contexts refer to different but complementary aspects or dimensions of the transaction between person and environment.
- The cells of the framework show different aspects of the person-environment transaction (the subjective/internal context), and aspects of the relationship between person and environment (the external/physical context).

The interactional view is thus incorporated in the broader transactional/holistic view as one view/perspective on an aspect

of the holistically conceptualized person-environment transaction.

Figure 3-1: A rudimentary framework for the person-environment transaction

DIFFERENT THEORETICAL PERSPECTIVES OR CONCEPTIONS OF THE RELATIONSHIP BETWEEN PERSON AND ENVIRONMENT		NON-HUMAN (PHYSICAL) ENTITIES (ENVIRONMENT)	HUMAN (SOCIAL) ENTITIES (PERSON)
COMPOSITE FOCUS/ CONCEPTION	SUBJECTIVE SOCIO-PHYSICAL CONTEXT	<u>PERSON AS PART OF THE ENVIRONMENT</u>	
		SUBJECTIVE ASPECTS (PERCEPTIONS EVALUATIONS AND MEANINGS) OF THE ENVIRONMENT	SUBJECTIVE/ PSYCHOLOGICAL ASPECTS OF THE PERSON
PARTITIVE FOCUS/ CONCEPTION	EXTERNAL SOCIO-PHYSICAL CONTEXT	<u>PERSON IN RELATION TO THE ENVIRONMENT</u>	
		OBSERVABLE ENVIRONMENTAL CHARACTERISTICS AND SIGNS AND SYMBOLS	OBSERVABLE ASPECTS OF THE PERSON AND CHARACTERISTIC BEHAVIOUR

3.3.2 Relativity of the "objective", "perceived" and "subjective" aspects of the sociophysical environment

A major problem in environmental psychological research of the person-environment transaction is the fact that the various aspects of the transaction have to be described, measured or evaluated by someone. Consideration of the relativity of "objective aspects", "perceived aspects" and the "subjective perceptions" of the sociophysical environment provides some clues to the solution of this problem.

A variable can be described either in subjective terms, from the "inner or subjective perspective" of a particular individual or group, or in objective terms, irrespective of or "outside" the subjective life of a particular individual or group (Stokols, 1987). Whether something is treated/described as objective or subjective is relative to the person (either in or outside), and

thus requires explicit consideration of "who performs the description" and "in which terms" (subjective or objective) it is described.

According to Stokols (1987), a description is "objective" only if it is performed outside or irrespective of the subjective influence of the particular individual or group. Thus, the description in objective terms of those aspects of the physical environment perceived by the user (the perceived environment) has to be performed by someone else, for it has to fall outside the subjective terms of reference of a particular person (user). If this description only reflects the perspective of one other person (that of the designer or researcher), the objectivity of that description is still questionable. A principal element in the definition of the "objective" aspects of the physical environment therefore seems to lie in the consensus between the members of particular social groups about that definition. Social groups provide the "descriptions or definitions in objective terms" of the physical aspects of the environment which their members perceive and thus define "objective" reality "outside" the subjective perception of the individual members (refer to chapter 2, the definition of folk theory by Ittelson, 1989).

A consideration of social processes is important to the understanding of the meaning of "objective reality". According to Stokols (1984, 1987), an analysis of social perception, by focusing on the common or widely recognized meanings that have become associated with the molar environment, offers a "middle ground" between subjectivist perspectives and objectivist views of the environment. Whereas subjectivist perspectives construe environmental perception as essentially a personal, idiosyncratic phenomenon, objectivist views avoid reference to perceptual processes altogether.

Stokols (1984, 1987), for example, discusses a feature of environmental psychology as its emphasis of social perception of

place meanings. This he defines as the process by which members of a sociophysical setting collectively perceive and ascribe meaning to their sociophysical milieu. Through social interaction and communication, consensus is reached about the meanings and functions of things in the material world. It is through interaction with relevant other people that the objective environment is defined for a particular person.

The social group (for example, a cultural group) is therefore considered to function as a kind of mediator in the relationship between the physical environment and the individual members of the group. The meaning of the "objective aspects" of the physical environment for a particular individual should be understood in terms of the relationship between the individual and social group.

(1) *The relationship between the individual and social group*

In the contextual approach, the focus of analysis can either be on the individual or on the aggregate level, depending on the target issue or phenomenon. The levels of analysis chosen to represent the relationships between people and their environments must be commensurate with both the individual and aggregate processes inherent in the target phenomenon. This focus will determine which attributes will constitute the external environment or context. To the extent that the focus is on the individual, group and subgroup variations can be overlooked, while an entirely aggregate level of analysis ignores the role of personal dispositions in moderating individuals' performance (Stokols, 1987).

To account for both individual and aggregate levels of analysis in the theoretical framework, the physical/external context is divided into a "perceived sociophysical context" (individual level of analysis) and a "shared sociophysical context" (aggregate level of analysis) (Figure 3-2). In both the perceived and the shared sociophysical contexts,

observable/external aspects of the relationship are focused on.

(a) *Perceived sociophysical context*

On the individual level of analysis, a distinction can be drawn between subjective perceptions or evaluations (the subjective sociophysical context) and those aspects of the transaction between person and environment "which are perceived" by a particular person. Those aspects of the sociophysical environment which are perceived by a particular person (observable physical and social aspects of person and environment) define the perceived sociophysical context of the person-environment transaction.

(b) *Shared sociophysical context*

On an aggregate level of analysis, the focus falls on the physical and social aspects shared between people through communication or various forms of interaction (material things, behaviour patterns, and descriptions of subjective perceptions, evaluations and meanings).

The shared sociophysical context is defined by some physical or external medium (for example, language or physical signs and symbols) through which social interaction or communication takes place. The notion of "sharing" or "interaction" implies overt/visible action between people, for example through some form of communication. The concept of "communication" itself carries the meaning of "communion," or to make "common," literally referring to a process of social interaction and sharing. In the shared sociophysical context, ideas, meanings and views of reality are shared amongst the members of social groups through various forms of verbal and non-verbal communication. A shared sociophysical context is thus defined by the fact that people interact (share), and not because they have a specific physical location in common.

Cultural groups provide the best-known examples of social contexts in which, through interaction between members, the physical aspects are endowed with meaning. For example, cultural groups share definitions of what reality is (or how it should be understood) by sharing amongst its members a cosmology and other views of the physical world. Religious, marital and various other rituals are devised to deal with that reality (Altman & Chemers, 1980). Through various social mechanisms and processes in a cultural group, consensus is reached about the meanings, functions of, and ways of dealing with, various aspects of the "physical reality". Some physical aspects of the environment itself function as a medium of communication.

Figure 3-2: Extended holistic, contextual framework for the person-environment transaction

DIFFERENT THEORETICAL PERSPECTIVES OR CONCEPTIONS OF THE RELATIONSHIP BETWEEN PERSON AND ENVIRONMENT		NON-HUMAN (PHYSICAL) ENTITIES (ENVIRONMENT)	HUMAN (SOCIAL) ENTITIES (PERSON)
COMPOSITE FOCUS/ CONCEPTION	INDIVIDUAL LEVEL OF ANALYSIS	<u>PERSON AS PART OF THE ENVIRONMENT</u> SUBJECTIVE ASPECTS (PERCEPTIONS AND MEANINGS) OF THE ENVIRONMENT	
		SUBJECTIVE SOCIO-PHYSICAL CONTEXT PERCEIVED ASPECTS/ CHARACTERISTICS OF THE PHYSICAL ENVIRONMENT AS SHARED BY SOCIAL GROUPS	SUBJECTIVE/ PSYCHOLOGICAL ASPECTS OF THE PERSON PERCEIVED ASPECTS/ CHARACTERISTICS OF THE HUMAN/SOCIAL-ENVIRONMENT AS SHARED BY SOCIAL GROUPS
PARTITIVE FOCUS/ CONCEPTION	AGGREGATE LEVEL OF ANALYSIS	<u>PERSON IN RELATION TO THE ENVIRONMENT</u> PERCEIVED ASPECTS/ CHARACTERISTICS OF THE PHYSICAL ENVIRONMENT AS SHARED BY SOCIAL GROUPS	
		PERCEIVED SOCIO-PHYSICAL CONTEXT AS SHARED BY SOCIAL GROUPS	PERCEIVED ASPECTS/ CHARACTERISTICS OF THE HUMAN/SOCIAL-ENVIRONMENT AS SHARED BY SOCIAL GROUPS

It must be emphasized that the person-environment transaction can only be understood in relation to how a particular individual or group experience it subjectively or describe it in "objective

terms". It can thus be stated that the theoretical framework emphasizes the (social) relativity of the person-environment transaction. The proposed theoretical framework can thus be used to account for differences between the perceptions of objective reality, held by individuals such as researchers, design professionals and individual users. The differences between the perceptions of "objective reality", as shared in various social groups of users, are also accounted for.

Figure 3-3 shows how the various subjective perceptions of the person-environment transaction (subjective/internal context) and the variety of aspects of the environment perceived by the various members of a social group (perceived/external physical context) are interrelated. Through interaction in the shared sociophysical environment, the individual members collectively ascribe meaning to the sociophysical environment and to themselves as part of, and apart from it. In this way the social group defines the "objective reality" for the individual member. Relative to the individual's subjective perception, the socially perceived (shared) aspects or definitions of the physical environment fall "outside" the subjective life of the individual.

Figure 3-3: Interaction between members of a social group in order to collectively arrive at a shared definition of the "objective" aspects of the person-environment relationship/transaction

	MEMBER 1	MEMBER 2	MEMBER 3	MEMBER 4	MEMBER N
Subjective sociophysical	Subjective aspects	Subjective aspects	Subjective aspects	Subjective aspects	Subjective aspects
Perceived sociophysical context	Perceived aspects	Perceived aspects	Perceived aspects	Perceived aspects	Perceived aspects
Shared sociophysical context	The sociophysical aspects which are shared in a particular social group.				

3.3.3 Summary of the main characteristics of the framework

The theoretical framework considers both the objective (physical) and the subjective (meaning) components of the relationship between person and environment. Both psychological and social variables, or both the individual and the aggregate levels of analysis, are emphasized.

Various contexts in which aspects of the transaction between person and environment can be studied are identified. The framework distinguishes between subjective aspects (perceptions, evaluations and meanings), perceived aspects and (socially) shared aspects of the sociophysical environment.

To show how these contexts are related to one another, the theoretical framework should also account for the psychosocial and behavioural processes which form the "ties" between the internal and external contexts. In the theoretical distinction between the concepts "house" and "home" and also in the distinction between the concepts "space" and "place," emphasis is placed on the symbolic value and meaning of the environment which evolves through people's active participation in the design and use of the physical settings. In section 3.4 a number of psychological and behavioural processes (individual level of analysis) and social processes (aggregate level of analysis) will be considered in terms of their role in the establishment of the subjective meanings of "place" and "home" and their role in defining the "objective environment" as something "outside" the subjective influence of individuals.

3.4 THE PSYCHOSOCIAL PROCESSES INVOLVED IN MAKING A HOUSE A HOME

Both the subjective values and meanings which users attribute to "home" and the physical aspects of "houses," which communicate these values and meanings, can be seen as outcomes or results of

social and psychological processes. In section 3.3 the existence of different descriptions in "objective terms" of social and physical environmental aspects was related to the fact that social groups act as mediators in the relationship between the individual and the sociophysical environment. Social groups "define" reality in "objective terms" for individual members through various psychosocial processes.

Developing countries such as South Africa are characterized by rapid changes in the sociophysical environment. In these countries it is particularly important to consider psychosocial processes in investigations of the relationship between "house" and "home".

This section considers how the interaction of the individual with the sociophysical environment functions to provide subjective conceptions, evaluations and meanings which guide actions in and towards the physical housing environment. Particular emphasis is placed on how changes in the shared sociophysical environment (for example during rapid social and cultural change) influence the individual's conception, experience and meaning of "home."

3.4.1 A theoretical orientation to change and change-inducing processes

(1) *The transactional view of change*

In the transactional view, on which the proposed theoretical framework is based, temporal processes are considered to be integral parts of events. Change is seen as an ongoing, intrinsic aspect of an event, and inherent in any event, and thus constitutes a focus of transactional analysis (Altman & Rogoff, 1987). Changes in various aspects of the transaction between person and environment are seen as interrelated.

(2) *The "adaptational perspective" of the relationship between person and environment*

In order to facilitate an understanding of how individuals establish and maintain the relationship between themselves and the sociophysical environment (particularly during rapid sociocultural change), the adaptational perspective of the relationship between environment and behaviour (Holahan, 1982; Tognoli, 1987) will be briefly considered. Because the adaptational perspective views the relationship between person and environment as a transaction, and also emphasizes the context of environmental phenomena (Holahan, 1982), it ties in well with the proposed theoretical framework.

According to Holahan (1982), an adaptational perspective of the relationship between environment and behaviour is based on the belief that people's behaviour reflects, or is a function of, interaction between human characteristics and characteristics of the environment. It emphasizes that people attempt to achieve a state of balance and harmony between themselves and their environmental surroundings (Holahan, 1982; Tognoli, 1987).

Stokols' (1978) concept of optimization is central to adaptation theory (Tognoli, 1987). According to Tognoli, the concept of "optimization" refers to the cyclical feedback process through which the individual constantly attempts to fulfil needs by establishing goals and plans. The individual is seen as being in a constant dynamic state, changing attitudes, behaviour and the environment to optimize a sense of congruence between self and place of residence. This relationship is therefore seen as an evolving one, where a state of complete adaptation or balance will possibly never be achieved.

The experience of a negative affect state, resulting from a negative evaluation of the person-environment fit, is seen as motivation to seek harmony, balance or congruence in the relationship between person and environment. Psychological and

behavioural responses to environmental stimulus conditions occur in order to "optimize" the affect state (Tognoli, 1987). Tognoli states that the aim of both adaptation and adjustment is to neutralize a negative affect state (Tognoli, 1987).

Wohlwill (1974) defines adaptation as "a quantitative shift in the distribution of judgemental or evaluative responses along a stimulus continuum, as a function of continued exposure to the stimulus" and adjustment as a "change in the behaviour which has the effect of modifying the stimulus conditions to which the individual is exposed" (p.656). Thus both adaptation and adjustment are outcomes of the psychological processing of information. However, in the case of adaptation, the responses "stay in the mind," while with adjustment the psychological response is overtly expressed in behaviour. Adaptation can be regarded as referring to the psychological aspect of the individual's reaction, while adjustment refers to the overt or behavioural reaction.

(3) *A theoretical framework for the experience of home*

The proposed theoretical framework attempts to account for the variety of social and psychological processes involved in the "experience of home" during a process of modernization (rapid sociocultural change). The "experience of home" refers to the quality of the relationship between human aspects (person/social/cultural) and non-human aspects (physical environmental aspects) of the person-environment transaction at a particular point in time.

In terms of the proposed framework, change-inducing processes (psychological, behavioural and social processes) on both individual and aggregate levels of analysis can be distinguished. Furthermore, these processes can be related to the different contexts in which the relationship can be studied.

Changes in the shared sociophysical context (modernization as a social process on an aggregate level of analysis) influence variables on the individual level (individual perceptions, evaluations and meanings as aspects of the perceived and subjective contexts). However, it is not only the aggregate level that induces changes in the individual - the individual members collectively contribute to changes in the sociophysical world (i.e. the aggregate level).

Figure 3-4 shows how the various psychosocial processes can be related to the contexts.

Figure 3-4: The various contexts and related psychosocial processes

INDIVIDUAL LEVEL	<u>Subjective context</u> (Perceptions, evaluations and meanings)	Psychological processes
	<u>Perceived context</u> (The physical and social environment as perceived)	Behavioural processes
AGGREGATE LEVEL	<u>Shared context</u>	Social processes

In the adaptational perspective, the quality of the relationship between person and environment is expressed as "balance, harmony or fit". In terms of the framework, the change-inducing processes which influence "balance, harmony or fit" can be studied in three interrelated contexts.

On the individual level of analysis, the psychological and behavioural involvement of the person with the physical and social environment must be considered. The experience and behaviour of the individual constantly changes as the individual attempts to find optimal balance and harmony (fit) in his/her relationship to the home environment. In terms of the framework this will involve a consideration of the subjective and the perceived contexts.

Experience is studied in the subjective sociophysical context. An individual's experience involves perception and evaluation of the quality of the relationship (harmony, balance or fit) through cognitive and affective processes which also provide the impetus for action. An experience of "home", on the psychological level or in the subjective context, refers to the highly valued quality of the person's relationship to the total sociophysical residential environment. (Refer to section 3.4.2, below, for a discussion of experience).

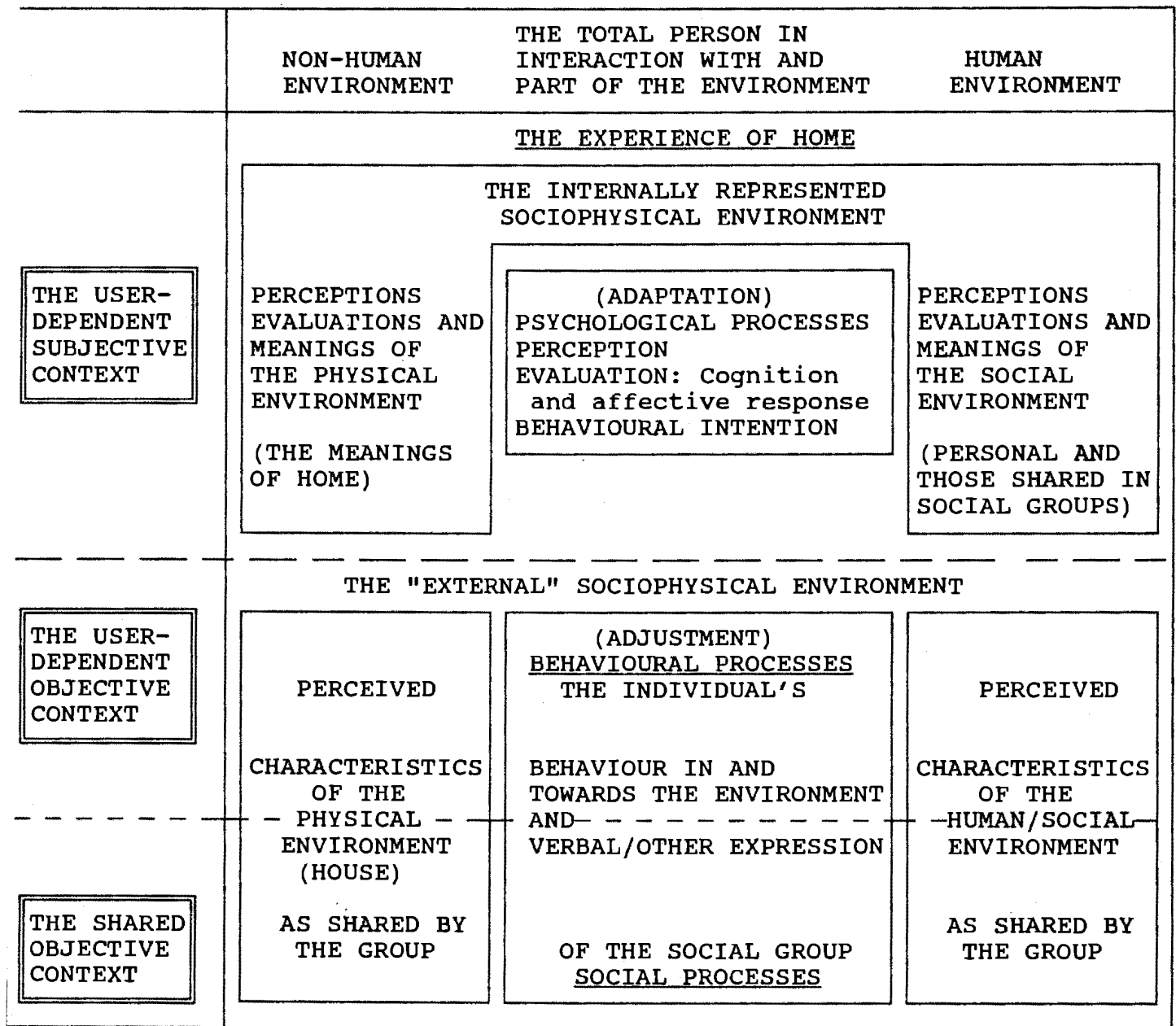
Those aspects of the sociophysical environment that are perceived by the individual are considered to provide the perceptual inputs for experience. These aspects are studied in the perceived sociophysical context. In this context the quality of the relationship refers to the balance, harmony or fit between the behaviour and characteristics of the individual and perceived characteristics of the social and the physical environment.

On the aggregate level of analysis, the role of the individual's membership of social groups will be considered. In terms of the proposed framework this will involve a consideration of the shared sociophysical context.

The quality of the relationship in this context refers to the degree of balance, fit, or congruence between the characteristics of the social group (for example, subjective culture) and aspects of the physical environment characteristically shared by the group. Various social processes (for example, forms of verbal and non-verbal communication and sharing of definitions, values and meanings of the sociophysical environment) are involved in the interaction between members of social groups.

The extended framework is shown in figure 3-5.

Figure 3-5: A theoretical framework for the experience of home



The focus of the present study falls on the interaction between the individual and the social group. Emphasis is placed on how a process of social change (modernization) influences the characteristic way in which individual members of social groups are related to their housing environments. It will be shown how the modernization process influences the social groups that act as mediators in the transaction between individuals and the

sociophysical environment. It is expected that the modernization process will thus influence the individual's "experience of home".

3.4.2 Psychological and behavioural processes on the individual level of analysis

The psychological and behavioural aspects of the individual's interaction with the sociophysical environment are usually seen as closely interrelated. The concepts "adaptation" and "adjustment" (Tognoli, 1987) do, however, differentiate between reactions (processes) which are directed more at the psychological aspects (adaptation) or at the sociophysical environment (adjustment).

(1) *Psychological processes (Adaptation)*

Of the numerous concepts employed to describe the psychological processes involved in the transaction between person and environment, the most prominent are considered to be "perception" and "evaluation" which together include both cognitive and affective processes. These psychological processes will be discussed in terms of their contributions to the more general concepts of environmental experience and environmental meaning. Environmental experience can be regarded as a more general psychological process encompassing various other processes.

(a) *Environmental experience*

In the present study, the concept "experience" is used to refer to the totality of a person's awareness of, and thoughts and feelings towards, a given real-life situation. It is seen as a dynamic mixture of perceptions, cognitions and emotions and includes plans for action.

Ittelson, Franck and O'Hanlon (1976) provide the following definition of environmental experience: "Environmental

experience is the continuing product of an active endeavour by the individual to create for himself a situation in which he can optimally function and achieve his own particular pattern of satisfaction" (p. 206).

The principal psychological processes considered to be aspects of environmental experience are summarized below.

(i) *Perception*

Environmental perception involves the process of apprehending the physical environment through sensory input (Holahan, 1982). Perception involves a process of internalization of information from the shared sociophysical environment. The observed physical environmental properties and attributes and social and cultural characteristics (the perceived physical context) provide the perceptual inputs.

Fisher, Bell and Baum (1984) state that environmental perception differs from conventional approaches to perception. While the conventional approach to perception examines the ways in which the brain interprets messages from sensory organs about specific elements in the environment, environmental perception views perceptual experience as more encompassing. Perception is influenced by other cognitive and affective processes and cannot be understood without reference to the totality of the environmental process (Ittelson, 1976).

According to the transactional view of perception (Viljoen, 1981), the perceptual process involves more than passive reception of information from the environment, which is then structured in the mind. In environmental psychology, the person-environment system is often taken as the unit of analysis and information processing is considered to be central to the process of perception.

Gärling and Golledge (1989) summarize research on the perceptual and cognitive processes underlying environmental experience. They emphasize the importance of considering the relationship between the internal processing of information, the environment, and a person's actions in the environment. These authors maintain that actions are part of the perceptual process and that plans for actions in specific environments determine what information will be processed.

The total perceptual process is thus influenced through the psychological or internal processing of information. To account for the fact that the environmental manifold is perceived in a "selective" way, the theoretical framework draws a distinction between perceptions (the internal or subjective outcomes of the perceptual process) and the perceived aspects of the sociophysical environment. The latter is reflected in the framework as aspects of the perceived sociophysical context.

(ii) *Evaluation and meaning*

Environmental evaluation involves the processing of the internally represented information through both cognitive and affective processes (Holahan, 1982). Environmental cognition is the process by which people understand, structure and learn about the environment through the organization, reconstruction, storage and recall of the features of the environment. Environmental evaluation and environmental attitudes refer to positive or negative feelings towards the environment (Holahan, 1982).

Rapoport (1977) sees environmental evaluation by the occupants as " ... more a matter of overall affective response than of a detailed analysis of specific aspects, it is more a matter of latent than of manifest function, and is largely affected by images and ideals" (p.60). Rapoport argues that people react to environments globally and in an affective way, before they analyze and evaluate them in more specific terms. In his view people react to environments in terms of what the environments

mean to them.

Wapner, Caplan and Cohen (1973) state that people perceive, think, feel about and act towards the environment not in terms of separate physical elements thereof and also not in terms of singular behavioural goals, but generally in terms of the meanings that the environment holds for the person. People perceive objects in terms of the utilitarian functions, meanings, actions and behaviours that the objects imply (affordances), rather than their physical characteristics. The term affordance refers to the psychological significance that an object has for a person. They use the example of a chair that is seen as something to sit on rather than as something made up of discrete physical characteristics (Wapner et al., 1973). Thus the meanings of the environment refer to the value that the environment holds for a person.

(iii) *The interrelationship between the psychological processes involved in environmental experience*

A study by Purcell (1986) suggests how these psychological processes, or aspects of environmental experience are interrelated. He developed a model that links ongoing environmental experience to affective responses to the environment. He sees ongoing experience as the result of a matching process between the characteristics (attributes) of ongoing available instances (incoming information from the environment) and a prototypically organized representation stored in memory (schema) of the gist of previous similar experiences. This matching process involves encoding, representation and processing of the environmental information.

The schema is seen as a hierarchically arranged knowledge structure or an underlying mental organization of experience. At each of the different levels of abstraction, relevant information about perceptual, cognitive and action sequences are stored as default values that together form prototypes of

physical environmental attributes. This schema influences the processing of information in various ways.

According to Purcell (1986), affective experience depends on the cognitive processing of information about the environment. Affective response occurs when there is a mismatch or discrepancy between the two sets of attributes, that is, the ongoing experienced attributes of the environment and the prototypical schema's attributes. This mismatch interrupts schema-based processing of environmental experience which then leads to arousal of the autonomic nervous system, associated with affective experience.

The experience of a negative affect state, resulting from a negative evaluation of the person-environment fit, is seen as motivation to seek harmony, fit or balance. The aim of psychological and behavioural reaction is to neutralize a negative affect state (Tognoli, 1987). In the subjective sociophysical context, adaptation takes place to optimize balance or fit. This involves continual change in the internally represented sociophysical environment (or the cognitive and affective schema) as a result of exposure to incoming information. Changes in the subjective sociophysical context will again influence environmental perception (those aspects perceived in the sociophysical environment) and therefore evaluation of fit.

(iv) Plans for action and behavioural intentions

While providing motivation for adaptation, negative evaluation of balance or fit is also seen as providing the motivational basis for overt behaviour, or for adjustment of the sociophysical environment. Weidemann and Anderson (1985) however, state that behavioural intentions (plans for action) mediate between affective response and actual behaviour. Behavioural intentions can be seen as the subjective outcomes of the psychological process of experience.

(b) *Summary*

Experience can be seen as the ongoing, emergent result of a psychological process of evaluation, which involves the matching of incoming information (stimulus information from the perceived sociophysical environment) with what is expected (the schema or the internally represented or subjective sociophysical environment). The outcomes of the matching process involved in environmental experience include evaluations (cognition and affect), environmental attitudes, environmental meanings and plans for action or behavioural intentions.

(2) *Behavioural processes (Adjustment)*

It is not possible to assess directly if a house is experienced as a "home" as the "experience of home" occurs in the subjective context. The quality of the fit between person and home environment, and the degree to which the house is experienced as home, must be inferred by the researcher. Behavioural responses to the sociophysical environment can be used as indicators of the quality of the fit between the individual and the sociophysical environment.

Behaviour is seen as any action or process that is overt in the sense of being visible, audible or in any way perceivable by others. In this sense behaviour will also include the individual's verbalization (or any other means of communication) of the experiences, likes and dislikes, needs, preferences and the meanings and values of things or persons in the environment.

The three classes of behavioural response that can be considered as indicators of experience of home are:

- Behaviour in the environment: typical domestic activities where the environment is working well.
- Behaviour towards the environment: behaviour aimed at altering the environment (adjustment) in order to improve

the fit.

- Verbal expressions or outcomes of evaluations such as likes, dislikes and preferences. Overt behaviour is an outcome of the psychological processes involved in environmental experience. The emphasis in this section falls on users as active parts of the sociophysical environment.

The three classes of behavioural response to the sociophysical environment are discussed below.

(a) *Behaviour in the environment*

Behaviour in the environment refers to the use of space in the house for various domestic routines and activities.

In research into environmental behaviour, it is important to make specific enquiries about aspects of behaviour where the environment is "working well" in the sense of supporting the individual's preferred life-style and activities. Because no interruption of schema-based information processing takes place, there is lack of negative affective response and balance or fit is experienced. Proshansky (1976) states that the awareness of one's own behaviour and experience in a given physical setting, and the build-up of attitudes, values, preferences, and likes and dislikes about the setting, frequently only occur when the setting fails to work for the person. The occupant will possibly not be able to describe fully the significance of the normal behavioural practices and uses of the environment, thus requiring explicit enquiry and investigation by researchers.

(b) *Behaviour towards the environment*

Behaviour towards the environment refers to adjustments aimed at altering the environment where problems in terms of the quality of fit are experienced.

Through overt behaviour, users adjust and control the environment by changing aspects of it, or by changing their place in it through their ability to choose and move between different environments. Adjustments performed in order to optimize person-environment fit have been the subject of much research, for example:

- residential choice (Proshansky, Ittelson & Rivlin, 1976; Noelker & Harel, 1981; Desbarats, 1983; Rapoport, 1985),
- residential mobility (Michelson, 1977; Clark & Onaka, 1983; Priemus, 1986),
- user's control over the sociophysical aspects of housing (Rapoport (1980); Oxman & Carmon (1986); Flemming, Baum & Weiss (1987); Wallston, Wallston, Smith & Dobbins (1987) and Wiesenfeld (1987)).

(c) *Expressions*

The individual's communication or expression of perceptions, feelings and attitudes, thoughts and plans of action is seen as a third class of behavioural response.

The need for explicit consideration of this class of behavioural response is underlined by the importance of communication as basis for social interaction (refer to section 3.4.3. for a discussion). Furthermore, in investigations of the meaning of "home", researchers mostly rely on the occupant's descriptions (expressions) of experiences, values and meanings. In fact, housing research largely relies on user expressions and verbalizations of experiences, cognitions and evaluations and descriptions of planned actions. These form the subject material from which the quality and nature of the relationship between person and environment are inferred (see section 2.3.1 (2) for a discussion of this topic).

3.4.3 Social processes on the aggregate level of analysis

On the aggregate level of analysis, the role of social group membership in the relationship between person and environment is considered. The individual shares the sociophysical reality (both physical and social environmental factors) with various social groups or aggregates. Social change involves changes in the characteristic way in which members of social groups are related to their housing environments. In terms of the framework this focus involves a consideration of the shared sociophysical context.

The individual's experience, although seen as a highly personal psychological process, reflects collectively held conceptions, evaluations and meanings of the environment (subjective context), and patterns of behavioural action characteristic of the social collectives with which the individual is associated. Interaction of the individual with the changing sociophysical environment influences the subjective meanings and evaluations which guide his/her actions in and towards the physical environment. The individual experiences (subjective sociophysical context) the sociophysical environment as it is perceived (perceived sociophysical context) and shared with others (shared sociophysical context).

Gilbert (1989) maintains that emphasis on the relationship between the individual and social change is needed for an adequate psychological theory of behaviour in the context of social change. Drawing on the work of Vygotsky (1978), Gilbert stresses that an understanding or theory of behaviour in the context of rapid social change should explicate the relationship between the individual and society in terms of social action. Vygotsky argues that humans use signs and sign systems to mediate between themselves and objects in their environment. These sign systems are derived from culture and are learned by the individual through interaction with significant others. Through interaction with others (interpsychological or on the social

level), cultural ways of doing things become internalized. On the intrapsychological level (internal cognitive processes), signs are seen as a means of mastering oneself, just as tools in the external world are a means of exerting mastery over nature. Internalized knowledge (experience) thus becomes the base of thought and the means for developing new ways of understanding (Gilbert, 1989). Gilbert also draws on the definition of culture by Geertz (1975) as a symbolic regulatory system, or a set of control mechanisms for the governing of behaviour. Gilbert maintains that, during a process of rapid social change, individuals develop and then internalize new controls through their interaction with significant others on the interpsychological level. During rapid change old ways of doing things, or the internalized control mechanisms that have operated to regulate behaviour, have to be replaced and may result in adjustment problems for the individual.

The view that an understanding of sociopsychological processes is necessary for an understanding of cultural change is also found in the work of Barnett (1953) on innovation as basis of cultural change (see section 3.4.3.(1)(b)(i)). He sees culture as shared ideas, and the innovation of ideas as a mental phenomenon underlying cultural variability. The view that social and cultural change is being mediated by the innovation and communication of ideas, provides a link between cultural change as primarily a social process (on the aggregate level of analysis) and psychological and behavioural reactions to changes in the environment (on the individual level of analysis). In their sociological analysis, Rogers and Shoemaker (1971) stress the role of communication in innovation and state that: "Perhaps all analysis of social change must ultimately center primary attention on communication processes. In fact, all explanations of human behavior directly stem from an examination of how individuals acquire and modify ideas through communication with others" (p.11).

A number of social groups (such as cultural groups, groupings

according to socio-economic status, levels of social class and stage of life cycle) have in past research been shown to be specifically relevant to the experience and meaning of home.

(1) *Culture and cultural change in relation to the home environment*

This section briefly considers how cultural and social characteristics are related to the form, quality and meaning of the housing environment. Important themes on the sources of cultural change and the impact of social and cultural change on the relationship between people and their housing are summarized.

(a) *The culture concept*

The term "culture" is widely used in sociology, anthropology and psychology and attempts to find a universally acceptable definition have met with little success (Jahoda, 1980; Altman & Chemers, 1980). The concept seems to have different but overlapping meanings in the different disciplines. Retief (1988) discusses the conceptual and theoretical problems in the study of culture, and specifically in cross-cultural psychology. This topic will not be analyzed in detail here. For the purpose of this study the following are considered to be the key components (Altman & Chemers, 1980) of the culture concept.

- Culture refers to beliefs and perceptions, values and norms, and customs and behaviours, as a cluster of characteristics.
- The concept of culture is used to indicate that these characteristics are shared among the group or society in a consensual way.
- These shared characteristics are preserved over time by passing them on to newcomers (e.g. children) through socialization and education. Changes in these

characteristics are therefore usually slow and evolutionary.

- The concept of culture includes, along with its mental and behavioural components, characteristic objects and elements of the physical environment that reflect these values, beliefs and behaviour patterns.

Triandis (1972) draw a distinction between material and non-material or subjective culture. Non-material or subjective culture includes aspects of society such as rules, norms, roles, values, stereotypes, attitudes, feelings and meanings. Triandis defines subjective culture as the characteristic way in which a cultural group perceives the man-made part of the environment. Material culture refers to the characteristic objects and elements of the physical environment that reflect these values, beliefs and behaviour patterns. Low (1988) regards designed environments as material culture in the sense that their form reflects cultural ordering. Rapoport (1980) makes a related distinction when he distinguishes traditional cultural characteristics (subjective culture) from the characteristics of the traditional environment (material culture). He emphasizes that the congruence between these aspects can be reduced during cultural change.

The distinctions between culture and the built environment (Altman & Chemers, 1980; Rapoport, 1980) and between material (physical) and non-material (subjective) aspects of culture (Triandis, 1972), can be related to the distinction drawn in the theoretical framework (refer to section 3.3.1, figure 3-1) between human (person/culture) and non-human (the built environment) entities and the subjective/internal and sociophysical/external (perceived and shared) contexts in which the relationship/transaction between these entities can be studied. Subjective culture does not only refer to aspects of the person such as the various psychological processes and contents such as values and norms, but also includes the

perceptions, evaluations and meanings attributed to the physical environment. In the subjective/internal context, person and environment are considered to be interdependent aspects of a holistic unity. Material culture (aspects of the physical environment), for example the built environment, also includes some human components as its form often reflects social values and norms. Physical aspects of the person (for example, dress and particular behaviour patterns), can be regarded as material aspects of culture.

The concept "culture," therefore, refers to the cluster of characteristics that describe shared values, norms and beliefs (subjective culture) and practices and objects (material culture) shared by a group or society in a consensual way. According to this view of culture, houses can be seen as the products of culture. Houses may thus provide a reflection of a cultural group's relationship to its environment (Altman & Chemers, 1980; Low, 1988). Altman and Chemers (1980) discuss research literature on a number of cultural factors that have an influence on the home. They include world views, environmental cognitions and perceptions, privacy regulation, religious and other values, social structure and family structure as cultural facets that play a role in the form and meaning of the house. The design of homes also reflects the influence of environmental factors such as climate, temperature, terrain and technological factors such as resources and skills (Altman & Chemers, 1980).

(b) *Social and cultural change*

The amount and rate of cultural and social change affect the nature and quality of the relationship between people and their housing in various ways. Cultural and social change can be incremental, as in the case where innovative ideas gradually spread from within and through a specific cultural group (Barnett, 1953). On the other hand, change can be more abrupt, as in the case where people relocate to a place which brings them into close contact with members of another culture or which

forces them to live in environments drastically different from what they are used to, for example during urbanization (Back, 1980; Marris, 1980).

(i) *Forces behind the cultural change process*

Segall (1986) states that cultural contact, migration, the spread of information through communication and education are some of the forces behind the cultural change process. Innovation, urbanization, acculturation, westernization, and modernization are all concepts that describe related aspects of a process of social and cultural change. The modernization and modernity concepts have some advantages over the other concepts that describe aspects of the cultural change process.

(a) Innovation, as a process that has an influence on the cultural change process, is defined by Barnett (1953) as "... any thought, behavior or thing that is new because it is qualitatively different from existing forms" (p. 7). He states that the essence of change lies in the restructuring of the parts so that a new pattern results. The new pattern is distinct, not because of the increase or decrease in the number of its constituent elements, but rather in terms of the qualitative difference resulting from the reorganization of the elements. These elements are seen to be the materials of innovations, which include the cultural inventory that is available to the innovator, or all the ideas of things, techniques, behaviours and ideas which belong to either the own ethnic group or to others.

Barnett (1953) emphasizes that an understanding of sociopsychological processes is necessary for an understanding of cultural change. He sees culture as shared ideas, and culture change as being mediated by the innovation of ideas. With this Barnett (1953) does not imply, however, that innovation is always a deliberate or closely reasoned process, but that innovation must be seen as a mental phenomenon underlying cultural variability.

The innovation process differs from urbanization, acculturation and westernization in the sense that it includes emphasis on both the individual (psychological) and aggregate (social) levels of analysis, where the others mostly emphasize the aggregate (social) level.

(b) Urbanization refers to the process of migration from a rural to an urban life-style which can be both cause and result of a cultural change process (Segall, 1980). Rapoport (1978) states that the urban environment, and particularly the residential environment, play an important role as an acculturating medium.

(c) Acculturation refers to the process where two cultures are in contact with one another and are reciprocally influenced by one another. Triandis, Kashima, Shimada and Villareal (1986) describe three types of acculturative outcomes:

Accommodation refers to the situation where members of the acculturating group adopt the behaviours and make similar responses to that of the culture they are acculturating to. The process of accommodation also involves cultural assimilation, which refers to a situation where aspects of both cultures are integrated into a novel outcome dissimilar to either of the two contact cultures.

Secondly, overshooting refers to the situation where the members of the acculturating group go beyond the position or norm of the other culture. Relative to the position of the contact culture, a particular norm is overemphasized.

The third outcome is called affirmation, which refers to the situation where the own culture's position is strongly maintained and emphasized in the light of the differences with the other culture (Triandis et al., 1986).

Triandis et al. (1986) found evidence that different aspects of culture are differentially influenced by acculturation. They

provide a theoretical explanation of their research findings by stating that more visible, overt behaviour and the aspects of subjective culture associated with overt behaviour change first - that is, accommodation takes place in overt behaviour and in the role of perceptions closely associated with behaviour. Aspects of subjective culture not closely associated with overt behaviour do not change as easily and will tend to show affirmation.

(d) Westernization can be defined as cultural change in the direction of the social, economical and political systems that have developed in Western Europe and North America (Rip, 1977). In this sense it can be seen as a specific instance of acculturation.

(e) Modernization is seen as the process of cultural change on a linear time-scale (Thompson, 1977, 1980a). Modernization is an all-encompassing process of social change (Steyn, 1972) and can be the result of innovation in the culture, or the result of acculturation (Rip, 1977). Urbanization often plays an important role in the modernization process (Segall, 1986). "Modernity" is taken to refer to a judgement of something in terms of two ideal-typical criteria. The "traditional" is used as one criterion and movement away from this is described as modernization. At the other end of the continuum, the "modern" is seen as the most recent (Thompson, 1977). The modernity of something thus refers to its social definition, or its value or meaning in the specific society as either "old" (traditional) or "current" (modern). This concept will be discussed in more detail later.

A distinction between the westernization and modernization concepts is important. In the South African context the influence of urbanization, acculturation, westernization and innovation on the relationship between the human and his residential environment can hardly be separated. However, the findings of Triandis et al. (1986) and Rip (1977), that cultural change does not take place at the same rate or in the same form

in all aspects of the culture or society, indicate that the concepts of westernization and modernization are seldom synonymous. Rip emphasizes that society should not be seen in a monolithic sense and makes a distinction between the following hierarchically interrelated culture components: values, norms, mobilization in organized roles (organization) and situation facilities. In a discussion of modernization and westernization, Rip states that modernization usually first takes place on the facility level by changes in technology. Aspects of society on levels higher up in the hierarchy, such as organization, values and norms, show more resistance to change. According to Triandis et al., the less visible cultural aspects change only after a very long time. Modernization can only be seen as synonymous with westernization to the extent that all levels of society change in the direction of western culture, including aspects of society on levels higher up in the hierarchy, such as its organization, values and norms (Rip, 1977).

Westernization refers to a specific acculturative process where persons from other cultures accept or accommodate the Western European and North American culture. Modernization refers to the change process towards the most recent facilities, technology, type of social organization, norms or values in a specific cultural context. It can be the result of acculturation, urbanization or innovation within the culture itself and does not imply concurrent changes in all levels of society. The modernization concept, therefore, has distinct advantages over the others.

(2) *The influence of cultural change on the relationship between person and home environment*

(a) *The diversification of housing needs and values*

Although traditional cultures themselves are not homogeneous or static societies (Gusfield, 1967), rapid cultural and social change often disrupts the traditional culture's characteristic

way of relating to the home environment (Rapoport, 1980, 1983). Rapoport (1980) discusses the congruency between traditional cultural characteristics and the characteristics of the traditional environment. In his view, the traditional congruencies are reduced as a result of cultural change. Triandis et al. (1986) and Rip (1977) indicate that cultural change takes place at different rates in the different levels of society, with the more visible physical aspects usually changing first. As the rate of change in the various components of culture may not be the same, the quality of the relationship can deteriorate during the change process and result in "the fit" of the people to the environment being reduced.

Due to the fact that a variety of factors influence the relationship between person and environment, it is unlikely that people with the same cultural identity will actually share the same experiences or change-inducing influences. It can be expected that the duration of acculturative contact will not be the same for all the individuals in a population and that various constraints other than cultural change influence the relationship. Examples of constraints are personality factors (such as differences in ability to learn and adapt to new technology), financial constraints and various political and economic factors. These, inter alia, influence the amount of control the members of a specific society have over the physical features of the housing in which they live.

Change, therefore, does not take place at the same rate for all people of a certain traditional culture. This will cause a diversification of the different kinds of relationships (and the housing needs and values) found in various sub-groupings of the traditional culture.

(b) *Changes in social structure*

(i) *Social organization and the organization of space*

The relationship between social organization, specifically the collectivistic groupings that order and pattern social life, and the organization of space have been the object of a great deal of previous research (Hartman, 1963; Buttner, 1972; Onibokun, 1976; Rivlin, 1982; Duncan, 1985; Priemus, 1986). The way in which social organization and its physical expression in space relate to the meaning of home cannot be discussed in detail here. Only the main points are stated.

The built environment provides a reflection of social structure (Duncan, 1985) and serves as a means of communication of the social values (Hartman, 1963) and of the identities of the individual members and the groups that occupy and use it (Rivlin, 1982; Duncan, 1985). Houses are parts of the entire interconnected residential area, which includes places such as schools, churches, recreational areas, playgrounds, shops etc. The social groups associated with these places contribute to the meaning of these places. A person's membership or non-membership of the groups will, for example, result in quite different meanings being attached to the places. Places in a residential area have special meaning for the members of groups who use them. Places often symbolize their attachment to the group. Group membership plays a role in the identity formation of its members. The physical space occupied by the group can be seen as a concrete expression of the identities of the group members (Rivlin, 1982). Just as the house stands in a certain spatial relationship to these other places in the environment, the occupants of that house stand in certain relationships to social groups in the community. Greater involvement in various social groups in the community can be associated with a greater amount of emotional attachment to the environment itself, to the house as a place in the environment, and to the house as symbol of the

occupant's place in the community and the social structure (Rivlin, 1982; Duncan, 1985).

(ii) *The influence of changes in social structure on the form and meaning of houses*

In South Africa the process of social and cultural change includes changes in the social structure. In the black community in particular, examples can be found of a move from a collectivistic to a more individualistic type of social structure (Schlemmer & Thaw, 1980). Duncan (1985) discusses the distinction between two ideal types of social structure, the collectivistic and individualistic. He considers these to represent the ends of a continuum. According to Duncan "third world societies that traditionally were highly collectivistic have been moving along the continuum toward individualism, thus producing some of the structural and psychological dilemmas of what is termed modernization or westernization" (p.134).

- *The collectivistic social structure*

Duncan (1985) describes this end of the continuum as the typical traditional third-world society that is characterized by relatively impermeable social groups composed of known others. Kinship is the most important organizing principle of the society with caste, tribe, clan or lineage as basis for social organization. The identity of individuals and the status of people are closely tied to their group membership. The built environment and the home in this type of society marks or symbolizes the individual's incorporation into the group and into the collectivistic social structure (Duncan, 1985).

- *Individualistic social structure*

At the other end of the continuum, the individualistic type of social structure places emphasis on individual identities rather than on membership of formal social groups. In the

individualistic type of social structure, the informal groups with which people want to be associated or with which they are associated on the grounds of their possession of one or more sociodemographic characteristics are often important. Social and demographic characteristics are often endowed with socially shared meanings and thus often play an important role in the social structuring process. Some of these sociodemographic characteristics are of particular importance in terms of their role in structuring society and in terms of their influence on the form, features and meanings of home.

The house is an important status symbol whereby individuals assert their identities (Duncan, 1985). Individuals situate themselves in the social structure through a display of status symbols. Houses are a means of communicating the inhabitants' social status and identity by being a concrete expression of their association with a social class (life-style and tastes), socio-economic stratum or any specific social grouping.

In societies which tend to become more individualistic, the number of different kinds of relationships between person and environment can be expected to increase. Changes in social organization that involve movement from collectivistic to individualistic types of social structure can, therefore, be associated with an increase in emphasis on a display of individual identity and status through houses and a reduction of the symbolic value of the house as an expression of incorporation into the collectivistic social structure.

In societies with a predominantly individualistic character, it can be expected that sociodemographic characteristics will be important in terms of their function of dividing society into various types of social groups. A number of sociodemographic characteristics can be seen as important aspects of group identity.

The first category of groups refers to the various socio-economic

status groups or strata. The sociodemographic variables that are important identifying characteristics for association with the groups and also important to the meaning of home as conveyor of group identity, include: level of income, educational level (Onibokun, 1976), the position in the labour market and status of employment/occupation (Onibokun, 1976; Priemus, 1986).

The second category of groups is the groupings that can be made according to people's association with different life-styles or different levels of social class. Although some communality with the first category of groups exists, the sociodemographic variables that are important here also include characteristics such as urban or rural background, tenure status and type of previous house (Onibokun 1976), kind of social life and domestic routines, religious beliefs and practices (Lawrence, 1983), the kind of contact with neighbours, and other social values and housing attitudes (Hartman, 1963).

The third category of groups refers to the groupings that can be made on the grounds of people's association with the different stages of the life cycle. Age, gender, marital status, single versus two-parent family structure, core versus extended family organization, mono- bi- or polygamous marriages, number and ages of children and various other variables related to individual and family life cycle have been shown to be sociodemographic variables that are important to the meaning of home (Morris & Winter, 1975; Onibokun, 1976; Clark & Onaka, 1983; Priemus, 1986).

3.4.4 Summary: Interaction between individual and social group during modernization

To summarize the preceding theoretical analysis, the modernization process is discussed briefly in terms of the interaction between the individual and social group in the context of housing. This study proposes that, during rapid modernization in developing countries, the quality of the

relationship between person and environment should be studied in terms of the interaction between the individual and social group and in both subjective (internal) and physical (external) contexts.

(1) *Individual reaction to modernization*

The quality of relationship between person and home environment is constantly being monitored by the individual through a psychological process of experience (the subjective aspect of the transaction between human and non-human characteristics which include perception, evaluation and behavioural intention). During modernization people experience new, alternative or changed sociophysical environments. Examples include: alternative housing forms and features, facilities such as running water in the house, or alternative layouts of various functional spaces (connected spaces with internal doors and passages). Urbanization and other forms of contact with members of other cultures give people exposure to alternative views, attitudes and technologies. As a result, the individual may experience a lack of fit between him/herself and the current house. This can be described as a loss of an "experience of home". This experience is seen as motivation for the individual to act in order to improve the quality of the relationship or fit to the environment. The individual can choose to adapt his/her cognitive schema, (for example, conception of house/home, evaluations of and attitudes towards the sociophysical environment and his/her plans for future action). The individual may alternatively adjust the sociophysical environment and behaviour. If the individual experiences fit, balance or harmony, the current house may be experienced as "home" and result in a reduction of the motivation for change.

Change may however be too rapid to allow the individual time for adaptation. Furthermore, the individual's ability to adjust the environment or to adjust his/her behaviour to improve congruence or fit may be constrained by a number of factors that influence

the individual's ability to control the environment. These factors may result in lack of fit between the person and home environment (lack of an "experience of home").

(2) *The aggregate level/shared physical/external context*

Through various social processes (various forms of communication and sharing in the shared sociophysical environment) groups of individuals from the same cultural background can be expected to solve shared problems of disharmony or lack of fit (between the sociocultural characteristics and the changed sociophysical environment) in characteristic ways. In order to reduce the experienced disharmony or lack of fit, people may collectively adapt their identities (conceptions of self and the social group) and their shared conceptions of the environment. In closely associated groups of individuals, similar or shared attitudes towards various aspects of the sociophysical environment (for an example refer to the attitudinal modernity scale discussed below) can be expected to develop, thus leading to changes in the subjective aspects of culture.

Closely associated members of social groups can also be expected to affect similar kinds of changes to the sociophysical environment in the attempt to adjust the environment to their needs. Changes in social structure can be regarded as changes in the social (human) environment. The modernization process involves individualization and a shift in emphasis from the expression of collective identity to individual identities through homes. In individualistic societies greater emphasis is placed on sociodemographic characteristics that define various social groups. There is a shift away from emphasis on ascribed social status, more typical of collective social structures. During modernization, social status and identity are more closely related to the various sub-groups (for example, a socio-economic stratum or social class, association with a position in the labour market or other sociodemographic characteristic) with which people want to be associated. People express their

association with a social class or stratum through overt (physical) signs of social status, such as the form and features of the house and other possessions. The latter are examples of changes in the physical (non-human) aspects of the environment.

It can be expected that a variety of sub-groups will develop in the traditional culture because not all members of a "traditional culture" experience the same extent of change-inducing influences. A diversification of the kinds of adaptive responses and a diversity of types of adjustments made to the physical environment (house) may result. A diversity of social groups, characterized by different kinds of "fit" or "non-fit" between human and non-human aspects, may develop.

(3) Interaction between the individual and social group

A separate focus on either the individual or aggregate levels of analysis may be misleading. People may have adjusted their environments to suit their functional and behavioural needs. Thus, in terms of those aspects of the relationship considered to be aspects of the shared sociophysical context, balance or fit may have been achieved. Analysis of the quality of the relationship on the individual level, particularly in the subjective context (experience of home), may however reveal that these people still experience lack of fit.

Rip (1977) and Triandis et al. (1986) indicate that during cultural change (modernization), changes usually take place on the physical, concrete or overt level first, while subjective aspects of culture only change after a long time. The implication seems to be that adjustment of the sociophysical environment is usually performed first while psychological adaptation is a longer process. This is perhaps mainly due to the fact that the process of communication and sharing of innovative ideas and solutions (adaptive responses) in social groups is a slow and evolutionary process. Shared adjustments of observable sociophysical aspects (development and

implementation of new technologies and materials) are readily perceivable, with the result that changes in these sociocultural characteristics take place sooner.

The implication for the present study is that, while some kind of balance or fit may be achieved on the overt level (in the shared sociophysical context, physical environments may "work" in terms of their functional purposes), fit on the subjective level (experience of home in the subjective context) may be more difficult to achieve.

The influence of modernization on the "experience of home", should be studied simultaneously on both the individual and aggregate levels of analysis and in terms of the interaction between individuals and groups.

3.5 THE THEORETICAL FRAMEWORK APPLIED IN THE DETERMINATION OF WHAT TO DESIGN FOR WHOM DURING RAPID MODERNIZATION

Chapter 2 (section 2.1) discussed the South African housing problem and focused on the fact that this society is characterized by rapid sociocultural change. It was emphasized that, due to the importance of social and cultural factors to the quality of the relationship between people and their housing, the possible effects of cultural change should be considered in designs of new housing.

In the preceding section the effect of cultural change on the relationship or fit between person and environment was discussed. It was shown that the traditional kind of relationship changes or the "fit/balance" (characteristic of the cultural group) is reduced and that various types of new relationships will develop, some of which will reflect balance or fit and some not. In South Africa the physical characteristics of newly-provided housing should therefore reflect the diversity of the social identities and support the various social, psychological and behavioural

needs and practices of the users. In order to determine what to design for whom, it is therefore important to be able identify and group those people with similar needs and requirements regarding their housing together.

Where the concept "culture" describes characteristic patterns in the relationship between people and their home environments on the macro-social level, it is too broad a concept to describe these patterns found in various sub-groups of the South African society. It is suggested that the "modernization" and "modernity" concepts can be used as a basis for an approach to the identification of smaller groups of people who share characteristic patterns in their relationships with their home environments.

The proposed theoretical framework can be applied in the study of the impact of the modernization process on the quality of the relationship between people and their housing in the South yAfrican context. A novel approach to the identification of people who share characteristic ways of relating to the housing environment can thus be proposed. The aim is to identify the trends and patterns in a specific population by utilizing as much information about the subjective meanings, attitudes, behaviours and related physical housing characteristics as possible. Adequate recognition should be given to the complexity of the multitude of social, psychological and environmental factors that influence the relationship between the person and the home environment in the multi-cultural and rapidly changing South African context.

The proposed theoretical framework can be applied to deal with the complexity of the multitude of variables. The emphasis falls on the impact of modernization (as a social process on the aggregate level of analysis) on the experience of home (on the individual level of analysis). The research problem (target phenomenon) therefore includes both individual and aggregate levels of analysis. Both internal and external aspects of the

relationship between person and environment (subjective and external sociophysical contexts) can be considered.

It is proposed that groups can be identified in terms of various kinds of fit between the modernity of human characteristics and modernity of housing characteristics (modernity fit). In the present study (see Chapter 5), "modernity fit" is studied in terms of the "fit" between the modernity of the physical characteristics of current housing (modernity of the house) and the modernity of the subjective sociocultural characteristics (attitudinal modernity) of the occupants (as represented by the head of the household). Both the modernity of the house and the attitudinal modernity of occupants are seen as outcomes of interrelated social and psychological processes during the person-environment transaction. These social and psychological processes include a number of factors that moderate the relationship between person and home environment. Examples of moderating factors include the degree and duration of exposure to acculturating influences. The amount of control people have over the design of their houses acts as moderator of the quality of the relationship.

It is expected that groups of people, selected according to "modernity fit" as described above (for example, groups such as "traditional fit", "modern fit" or "poor fit" where the occupants are more modern than the houses or vice versa) will have similar needs and requirements with regard to improved housing. Representatives from these groups can then participate in the design of houses. During the participatory design process, more detailed information can be obtained about the physical aspects of the design that reflect the sociocultural and personal values and meanings and support the various behavioural practices of the future occupants.

3.5.1 Various characteristics of the modernization concept in terms of the theoretical framework

The concepts "modernization" and "modernity fit" are discussed below in terms of the proposed theoretical framework.

(1) *Modernization emphasizes change*

In the effort to identify appropriate design characteristics of houses, the methods used must be sensitive to differences between groups of people, specifically where these differences often deal with the nature and extent of cultural change that has taken place, and not only with differences between characteristic facilities, organization, norms and practices of the different traditional cultural groups in the population. Ways should be explored through which both the stable and the changed characteristics and social identities of people can be identified in research and accounted for in house designs.

"Modernization" refers to change, not necessarily in the direction of what is better, but towards the most recent on a linear time-scale (Thompson, 1980a). It thus emphasizes the temporal factor, or the fact that the relationship between person and environment changes over time. Modernization refers to the idea of "the old" and "the new," or to the fact that most people are aware of differences in the way younger and older people do things, and thus has "face validity".

The modernization concept refers to a process of continual change and adaptation. Neither "the traditional" nor "the modern" refers to a static or monolithic status of the form and features of things and ideas shared in a society. Both refer to a relatively stable set of features and characteristics reflecting a stage in cultural development. In comparison with times of increased change and greater variety of these features and characteristics, a stage of greater stability indicates that, for the group as a whole, there is more balance and harmony in the

relationship between person and environment.

The various psychological, behavioural and social processes responsible for changes in the relationship between person and environment are seen as modernizing influences that affect the quality of the relationship.

(2) *The quality of the relationship: Modernity as evaluative concept*

To determine the influence of cultural change, an indicator of amount of change relative to some criterion is needed. Under conditions of cultural change, ratings of the modernity of the characteristics can be a useful indicator of the fit of people to the current housing environment (modernity fit) and thus of the influence of cultural change on the experience of home.

Whether something is seen as an aspect of culture depends on the extent to which such a thing is shared in the relevant society. In similar vein, the "modernity value" of something will depend on the relevant social group. "Modernity" is taken to refer to a judgement of something in terms of two ideal-typical criteria. The "traditional" is used as one criterion and movement away from this is described as modernization. At the other end of the continuum, the "modern" is seen as the most recent (Thompson, 1977). The modernity of something thus refers to its social definition, or its value or meaning in the specific society as either "old" (traditional) or "current" (modern).

Whether the physical features of housing are judged as too modern or not modern enough depends on a multitude of factors, inter alia, the occupant's own evaluation on grounds of past experiences, the values shared with the primary social and cultural group and the degree of exposure to the values, ideas and technologies of other cultures.

(3) *Modernization of both human (person) and non-human (environment) entities*

The modernization concept can be used to describe continual change in the psychological and social characteristics of people, in the physical housing characteristics and in the relationship between people and their housing.

Modernity can, for example, be used to distinguish between different people in terms of their attitudinal modernity. The features of the current houses of these people can also be judged in terms of modernity.

The quality of the relationship between person and environment will be enhanced if the modernity of the physical housing features of new designs is suitable to the modernity of the occupants.

(4) *Modernization of both material (physical) and subjective cultural aspects*

"Modernization" refers to changes in both the material aspects of culture such as facilities and various built structures, and in subjective aspects of culture such as beliefs, rules, roles, values and norms (Rip, 1977).

(5) *Modernization of both individuals and groups*

Modernity can be studied on both individual and aggregate levels. It can, for example, be used to describe the attitudes of individuals (Inkeles & Smith, 1974; Thompson, 1977, 1980a) or traits and characteristics of social groups (Steyn, 1972; Segall, 1986).

A number of researchers developed scales for measuring individual modernity (Morse, 1969; Armer & Schnaiberg, 1972). Attempts to measure modernity were reasonably successful but due to problems,

mainly with construct validity, indexes have definite limitations (Armer & Schnaiberg, 1972). The relevant research literature has been discussed by a number of authors (Brode, 1969; Inkeles & Smith, 1974; Thompson, 1977 and Henn, 1989) and will therefore not be discussed here.

The approach to modernization in this study differs from approaches to the study of either individual or social aspects of modernity in previous research. The modernity of something is seen as a function of the interaction between individual and group. An understanding of psychosocial processes is necessary for an understanding of the modernization process. Psychosocial processes determine or influence what is considered to be "traditional" or "modern" in both (human) patterns of action and non-human (man-made) aspects of the environment. The social relativity of what is seen as traditional or modern is thus emphasized.

3.5.2 The concept "modernity fit" as indicator of the quality of the relationship

"Modernity fit" describes the quality of the relationship in terms of the changing configuration of both the physical and social world of which the occupant forms a part. The "fit" (balance or harmony) between the modernity of the person and the modernity of the environment can be a useful indicator of the quality of the relationship at a particular point in time. The concept "modernity fit" thus refers to the congruence or balance in the relationship between the modernity of the characteristics of the person and of the physical environment.

3.5.3 Moderators of modernity fit

From the preceding discussion, a number of key variables, considered to be the most important contributing factors in the process of cultural and social change or modernization in the South African context, can be identified. These variables are

seen as sociocultural moderators of the quality of the relationship between the modernity of the person and the modernity of the house.

(1) *The rate of change: amount and duration of cultural contact*

(a) *Cultural contact (Acculturation / westernization)*

In South Africa the urban environment, formal schooling, influences of the workplace, radio, television and printed media (which are mostly introduced and run by western-oriented whites) all contribute to the cultural change process. The common factor here involves the degree to which an individual is exposed to or has contact with modernizing agents and models of western life-style.

(b) *Duration of contact*

The duration of contact will also influence the quality of the relationship between the person and the home environment. For example, the duration of contact with proponents of western culture in western-type environments, specifically western towns, cities and workplaces, and the duration of stay in a specific house will play an important role in the quality of the relationship. It can be expected that a longer duration of contact will result in more balance, harmony or fit of the occupants to the environment. A longer duration of contact allows time for adaptation to the environment and for the development of innovative ideas to solve problems in adaptation to the changed aspects of the sociophysical environment.

Although people live in urban environments for a great length of time, this does not, however, mean that they have been completely acculturated to a western life-style (Rip, 1977; Gugushe, 1984). Gugushe (1984) describes how the urban environment in South Africa, and specifically the black urban township and the work environment, brings the urban black individual into interaction

with other black cultures and with the cultural traits of western society. He calls the result a bi-culturism and indicates that adaptation to the culture of western society is never complete because of the ambivalence that exists in the urban black's attitude towards both his traditional and the western culture. He describes the social life of the urban black as a "double game" which involves attempts to win respectability in both societies. He provides examples of bi-culturism in the lobola and marriage practices, in ancestor worship and Christianity, and in beliefs in and practices of black magic. Schlemmer and Thaw (1980) discuss this dilemma of urbanizing blacks in detail.

(2) *Control: The culture-specific processes by which dwellings are produced*

The amount of control people have over their physical living conditions can be seen as an important factor during the process of cultural change. Regarding the process by which dwellings are produced, the distinction between the vernacular and post-industrial process of production, suggested by Alexander (1946, discussed in Lawrence, 1983) is relevant to the South African context.

Alexander described the building of houses in pre-literate cultures as an unselfconscious process governed by unspoken but rigidly maintained rules, which resulted in physical structures with very little variation. These rules and man-made objects developed in an incremental, adaptive and evolutionary way. In post-industrial societies this incremental, adaptive change process is replaced by a self-conscious, rapid and decisive construction process. House design and construction moves out of the hands of the occupants and becomes the function of professionals (Lawrence, 1983).

House designs then often provide a reflection of the designer's needs and characteristics as they apply to housing, or at best reflect the designer's subjective interpretation of what the

needs and characteristics of the end users are (Lawrence, 1983; Rapoport, 1983). This often results in designs that are inappropriate to the social and cultural lives of the occupants (Rapoport, 1983). The culturally mediated modes of control over the environment come under strain during cultural change and therefore the culturally mediated meaning of the home for its occupants can be altered during the change process. Cultural change can affect the meaning of home in the sense that the house can represent less of a personal accomplishment and be less of a culturally mediated expression of identity (Dovey, 1985).

The amount of control thus plays a role in the meaning of home and the quality of the relationship between the occupant and the home environment in the extent to which the physical environment can change (modernize) without the participation of the occupants. The ability to control and exert culturally influenced preferences in housing is more limited for acculturating groups and for those people who have to rely on government and institutional help to acquire housing.

For many people in the Third-world contingent of the SA population, cultural change and modernization can lead to a loss of a sense of control over their home environments and thus change the meaning of home. In cases where people still construct their own housing, as in some rural areas, the influence of modernization can be expected to be more gradual. The influence of acculturation is most pronounced in the urban areas and change is more abrupt. Past South African government policies structured the urbanization process in the sense of being prescriptive as to where people may stay (Mashile, 1981). People entering the urban areas under the old influx control laws were exposed to a situation where land and resources for the expression of a preferred life-style were not available. These people were not able to design their environments in a way suitable to their life-style and cultural practices. The influence of typical township life is important in this regard. Government agencies provided housing for many people in so-called

townships, mostly in the form of western-style three to four room houses. The physical environments in which these people live often are drastically different from that which newcomers are used to (Mashile, 1981).

If changes in the environment are the result of factors not under the control of the occupants, one can expect that there will be poorer fit between the individuals involved and the environments they live in.

CHAPTER 4 RESEARCH DESIGN AND METHOD

4.1 AIMS OF THE EMPIRICAL STUDY

In the empirical part of the study, the utility of the theoretical framework as it is applied in the proposed approach to the determination of what to design for whom is tested. The "experience of home" of a sample of South NDebele households, which are considered to be at different stages of the modernization process, is investigated.

"Modernity fit" is expected to be related to the "experience of home." The aim is to identify various "modernity fit groups" in terms of the relationship between the modernity of the physical characteristics of current housing (modernity of the house) and the modernity of the subjective sociocultural characteristics (attitudinal modernity). These groups will be compared with regard to various indicators of an "experience of home."

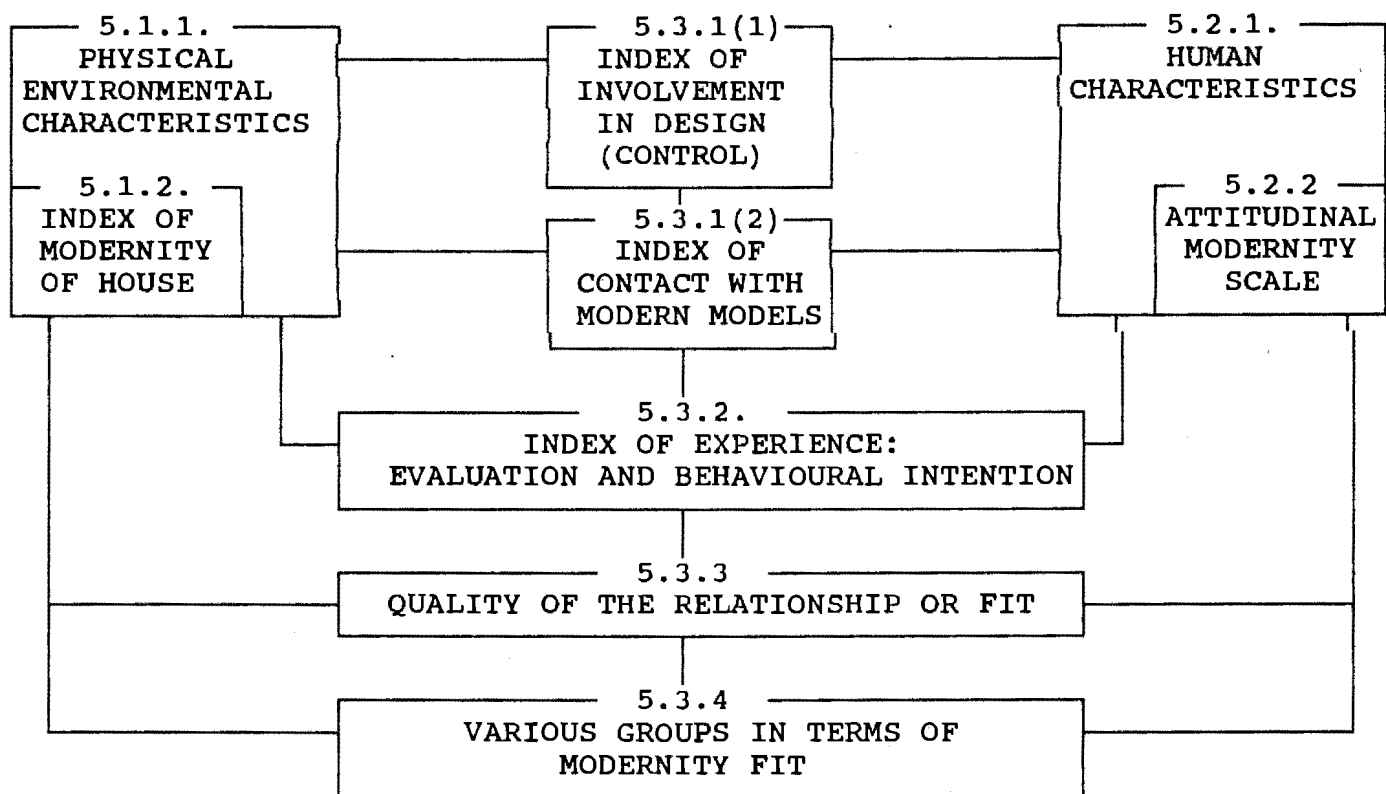
Indicators of experience include verbalizations of cognitive and affective evaluation and behavioural intentions such as plans to change the house. Because the "experience of home" is subjective, whether or not the house is experienced as "home" can only be inferred from descriptions (overt expression of subjective perceptions, evaluations, meanings, preferences, likes and dislikes) given by the individual users. The researcher has to study subjective experience of fit indirectly, in the shared sociophysical context.

4.2 RESEARCH DESIGN AND HYPOTHESES

In this study "modernity fit" is taken to refer to the relationship between the modernity of the physical characteristics of current housing (modernity of house) and the modernity of subjective sociocultural characteristics (attitudinal modernity) as represented by the head of the household. This relationship and the indexes that measure some

of the moderating factors are shown in figure 4-1.

Figure 4-1: Research design and instruments



Numbers refer to the relevant section in which the results are discussed.

An "index of the modernity of house" will be developed to provide a measure or quantification of changes (modernization) in the physical form and features of houses (physical environmental characteristics).

An "attitudinal modernity scale" (Thompson, 1977, 1980b) will be used to provide an indication of the subjective values and attitudes of individuals that developed as a result of the modernization process (human characteristics).

The hypotheses are:

- H1 It will be possible to construct an index that measures the "modernity of the house" reliably.

- H2 The "attitudinal modernity scale" will provide a reliable indication of the modernity of the attitudes of respondents.

It can be expected that, because of the close relationship between person and environment, a degree of congruence will exist between the modernity of people and the modernity of their housing.

- H3 There will be a positive relationship between scores on the "index of the modernity of house" and the "attitudinal modernity scale."

Various factors in the sociophysical environment moderate the quality of the relationship between modernity of house and attitudinal modernity (physical/external context). These factors are also expected to influence the individual's experience of the quality of the relationship (subjective/internal context).

Two indexes (shown in figure 4-1): "Index of involvement in design" and "Index of contact with modern models" will be used to measure the amount of contact respondents have with modern models (acculturation) and amount of control they have over the design and building of the house.

- H4 The index of "the involvement of occupants in the design of their houses" will be reliable.
- H5 The index of "the amount of contact with modern models" will be reliable.
- H6 Scores on the "contact with the modern model" and "involvement in design" indexes will explain the strength of the relationship between scores on the "modernity of house index" and the "attitudinal modernity scale."

It is proposed that various groups can be identified in terms of modernity fit.

- H7 It will be possible to identify various groups of people in terms of the fit between the modernity of characteristics of their current housing and the attitudinal modernity of the individuals.

The relationship between the modernity of the house and the attitudinal modernity of the occupants (as expressed in various "modernity fit groups") influences experiences of and behaviour towards the housing environment. Membership of a particular modernity fit group is expected to be related to an individual's "experience of home". The individual's subjective experience of the quality of the relationship will be measured by means of an "Index of experience" which includes a number of indicators of experience such as descriptions of cognitive and affective evaluations (likes and dislikes) and behavioural intentions.

- H8 The "index of experience" will provide a reliable measure of individuals' subjective evaluation of the quality of the relationship between themselves and the house.

The different "modernity fit groups" will be compared with regard to scores obtained by means of the "index of experience of home."

- H9 Various "modernity fit groups" will explain people's cognitive and affective evaluation of the relationship (more positive experience in "fit groups" or more negative experience in "non fit groups").

- H10 Groups of people, identified in terms of modernity fit, will share similar plans for action regarding changes to their housing.

4.3 DESCRIPTION AND COMPOSITION OF THE SAMPLE

The household was chosen as the unit of analysis most applicable to the research problem. A household included all relatives that stay together on the same plot and share in domestic activities such as preparation of food, cleaning and caring for children. This definition was broad enough to include both nuclear families (two parents and their direct offspring) and the traditional South NDebele extended family. In the latter, the male head of the household, his married children and their children who share a plot or kraal, were considered to be part of a single household.

South NDebele households at various stages of the modernization process (a variety in terms of both houses and people) were included in the sample. Both houses and people can be classified on a continuum ranging between two ideal types, the traditional and the modern, most falling somewhere between the two. The attitudes of people and the physical environment do not modernize at the same rate. Care was taken to include a variety of people (in terms of degree of contact with modernizing influences) and houses. To ensure that this variety was represented in the study, anthropological data were used for the classification of various types of houses ("Traditional"; "Transitional" which includes "Temporary (Shack)", "Self-help" and "Provided"; and "Modern"). Households were also selected from a variety of geographical areas. How these parameters and the various criteria were employed in the sampling procedure are discussed below.

4.3.1 Subjects

In order to limit the scope of this study, the experimental design was simplified by including only members of households of the South NDebele cultural group. An advantage is that ethnic-cultural variables were controlled which allows for comparative studies with other cultural groups. In some living areas (the traditional homeland area of Kwa NDebele), people of the same

ethnic background stay in clearly defined areas which made the identification of people according to their cultural identity relatively easy. In other areas (rural-town and urban areas) the occupants had to be questioned to ensure that only households in which the head is a South Ndebele were included.

The respondents (subjects) were the most senior representatives of the households. In each selected house the most senior person available was interviewed, either the male or the female head or the most senior female member of the household. In most cases the most senior female was interviewed because the male heads of the households were often at their workplace at the time of the interview. In some areas the male heads were migrant workers who only returned home on weekends or during their leave.

4.3.2 Traditional sociocultural characteristics of the South Ndebele

A brief overview of the South NDebele traditional kraal and house design and some central social customs pertaining to the home environment is provided before the size of the sample and the various parameters used in the sampling procedure are discussed.

(1) *Social structure*

The most important social units of the NDebele are based on communality of descent and place of residence. The South NDebele live in the Eastern Transvaal Region and differ from the North NDebele with regard to aspects such as language, culture and history. Three main groups of the South NDebele and a number of tribes in each of these groups can be identified: the Manala (three tribes), Ndzundza (four tribes) and Hwaduba (single tribe).

The social structure, or the primary social organization, is based upon descent from the family line of the father (patrilinear). In each tribe a number of patrilinear groups

(*izibongo*) can be identified. These groups share descent from a communal forefather. The line of descent can further be divided into various smaller groups (*iinkoro* and *iimbelelego*). These groups traditionally lived in clearly defined tribal areas. Currently, members of various tribes live together in rural areas. In urban areas members of various tribes and other ethnic cultural groups live together.

Social groups are also formed on the grounds of shared interests or for certain purposes. Different groups are defined for age and gender groups in order to regulate the relationships between the groups, for example, regulation through the *hlonipha* practices (discussed below) (Van Vuuren, 1983, 1985).

(2) *Social customs pertaining to the use of domestic space: hlonipha practices*

The concept *hlonipha* means "to show respect." The *hlonipha* practices regulate the relationships between various groups of people and are primarily aimed at avoiding incestuous relationships. A number of interpersonal relationships are regarded as "undesirable" by the NDebele. Examples include the relationship between the father and his son's wife, or mother and son-in-law. These relationships are strictly forbidden and are actively avoided by adherence to the *hlonipha* behavioural guidelines. These people are to avoid all contact with each other, may not touch each other's clothes, are not allowed to eat together, may not enter each other's huts and the wife may not even say the name of her father-in-law.

These practices have implications for the physical layout of the kraal. There must be ample space and routes so that these family members can actively avoid each other.

(3) *Forms of settlement*

Van Vuuren (1985) discusses four types of settlements identified

in Kwa NDebele during a 1979 planning survey of the then Department of Co-operation and Development.

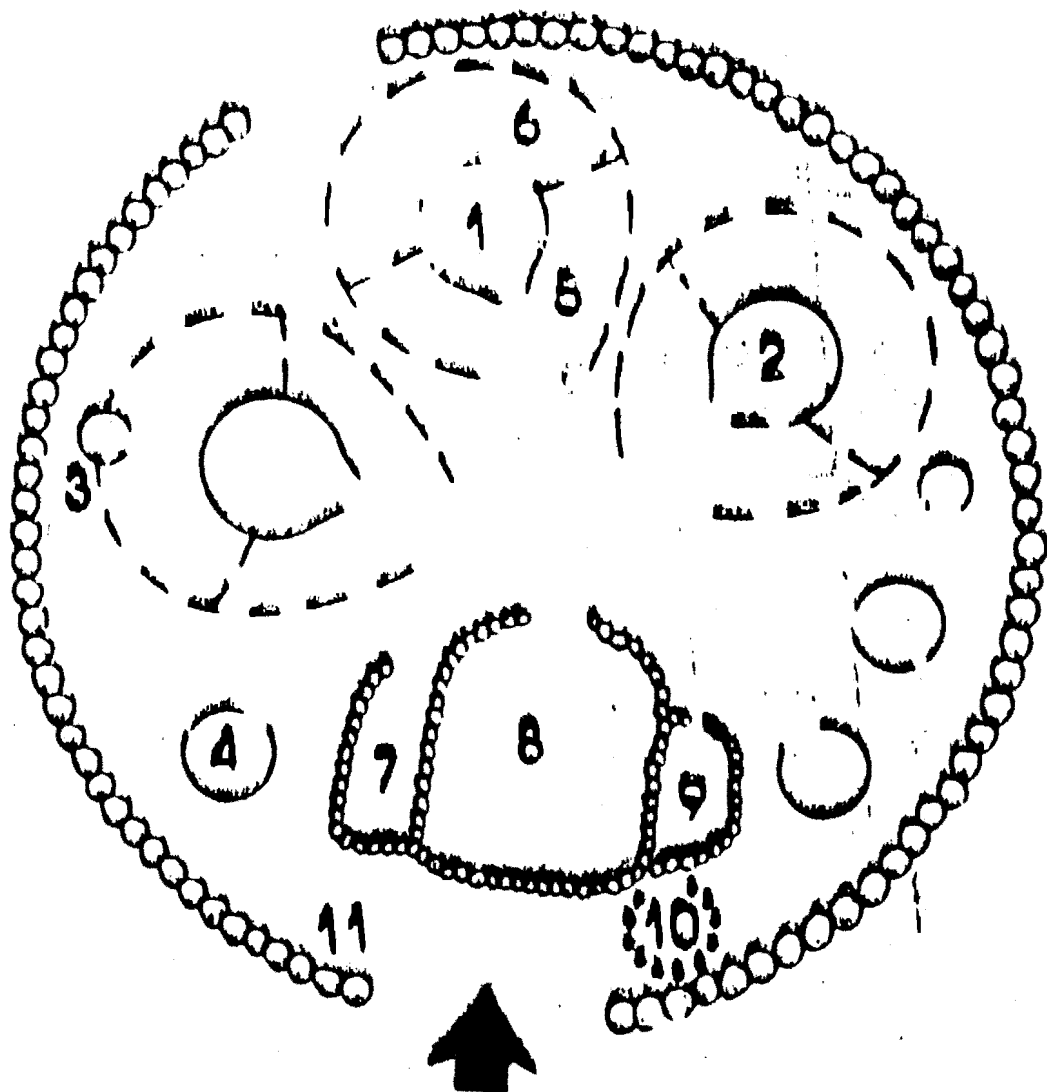
- Proclaimed, planned towns with infrastructure such as a central business core and recreation facilities, for example Siyabuswa.
- Officially surveyed settlements that usually display a geometric layout, but which have not yet been officially proclaimed as towns, for example Klipplaatdrif (Matshirini).
- Traditional settlements consisting of a number of traditional kraals that sometimes are subdivided into a number of individual stands, for example Weltevreden (Kwa Mabusa).
- Informal settlements without any clear layout or pattern.

(4) *Layout of the traditional kraal*

The NDebele kraal traditionally consisted of the huts and other built structures of a patrilinear, extended or single family unit. In the more current settlement pattern of the NDebele, the kraal is mainly occupied by a single family unit. Extended family units are seldom found living together in one kraal.

Huts were traditionally organized in a circular or semi-circular fashion around the cattle kraal. According to Van Vuuren (1985) the current rectangular organization of huts, in an inverted U-type formation, developed approximately during the 1930's. According to social custom, the kraal is divided into a right (male) and a left (female) part. The sketch provided below shows the main structures and functional spaces found in the traditional kraal layout (Van Vuuren, 1985).

Figure 4-2: Traditional South Ndebele kraal layout and hut design



- | | |
|--|------------------------|
| 1) Main hut | 7) Court area |
| 2) <i>Ikhohlo</i> (hut on left) | 8) Cattle kraal |
| 3) Girl's hut | 9) Pen for calves |
| 4) Boy's hut | 10) Goat kraal |
| 5) Reception area
(<i>esirhodlwani</i>) | 11) Fence of the kraal |
| 6) Cooking area | |

The principal component of the residential unit is the main hut. The existence of other structures depends on factors such as the stage of the family's life-cycle, the number, ages and gender of the children, the number of wives and the socio-economic status of the head of the household. The girl's hut is usually located to the left and slightly behind the main hut, with a low protective wall encircling it and the main hut. The outside cooking area is located behind the main hut, close to the girl's hut. The girl's hut sometimes doubles as cooking hut, for example when it rains. The boy's hut is usually located closer to the cattle kraal and is outside the protective wall around the main hut. The space between the protective wall of the main hut and the wall or fence of the kraal is mostly used for one or more of the following: a vegetable garden (behind the main hut), a cattle kraal, a pen for chicken or other poultry, a kraal for goats, the boy's hut, hut for guests and the store hut.

More recently the cattle kraal does not form part of the kraal because of limited space in more densely populated settlements and the fact that less people own cattle. However, according to Van Vuuren (1983, 1984) spaces traditionally associated with the cattle kraal (the *bandla*) are still important functional spaces in current kraal layouts. The *bandla* is a place used by the head of the household for meeting with visitors. Traditionally this was placed near the cattle kraal and such that he could survey access routes to the kraal.

(5) *The hut*

According to Van Vuuren (1983), the NDebele hut developed through three stages. The oldest type is known as the grass dome form which gradually developed into the rondawel type and most recently to the rectangular type. The latter is currently the most prevalent type of hut structure.

The main hut is usually the largest. The behavioural practices in the hut divide the internal space, like the kraal, into a

right male half and a left female half. This custom is used to indicate seating positions in the hut. There is no physical division. The left-right distinction is maintained through customary practice. The only physical division found in the rondawel-type main hut is a division of a central hut area and a corridor-type room around it. The corridor room shows a lot of variation and may consist of a small room adjacent to the main hut, be half circular, or form a full circle around the main hut area. This corridor room, so named because it usually is quite narrow, can be subdivided into a number of sections used for storage of different kinds of household articles.

It is sometimes used as sleeping area for small children and can also be used as cooking area. The inside of the main hut is mainly used for sleeping and sometimes for eating. The main hut traditionally contains a built-in chair with storage space on the sides. A fireplace is located in the centre of the hut, sometimes used for cooking but mainly for heating purposes.

Variations of the corridor room are also found in the rectangular hut type. In some cases it does not exist. It may also cover a part of the outside wall or the whole of it. The rectangular and square-type huts are often divided into a number of rooms. In a two-roomed structure, the one room will be used as sitting room or reception room while the other functions as sleeping space. If a third room is present it usually functions as kitchen. Additional rooms are used as sleeping space or store-rooms.

The more traditional boy's and girl's huts were smaller than the main hut and sometimes more than one boy's hut could be found, one for younger and one for older boys. The boy's and girl's huts were mainly used for sleeping but they sometimes doubled as storage and cooking spaces.

The traditional materials and methods used to construct these huts have, in some cases, been replaced by westernized materials

and methods.

(6) *The use of the space around the main hut*

The main hut is encircled by a low protective wall which includes the girl's hut. The space created by this wall is divided by a fence into a front reception area (*esirhodlweni*), where guests are received and entertained, and a back cooking area. The reception area (*esirhodlweni*) symbolizes the independence of the head of the household, and will therefore not be found in, for example, the houses of newly-weds. The cooking area at the back is located close to the girl's hut and contains the cooking fence. Apart from the preparation of food, this area is sometimes used for the processing of maize and grain harvests. The cooking area is the domain of women and men are seldom allowed in.

4.3.3 Size of the sample

Two parameters were used to compose different groups of houses representing different points on the modernization continuum:

- geographical area (rural-agricultural, rural-town and urban); and
- house type.

The composition of the sample in terms of these parameters is discussed in section 4.3.4. Table 4.1 shows the sample in terms of geographical area and the different house types investigated in each.

In the initial planning of fieldwork, the aim was to select 10 households as examples of each of five types of houses. Due to the complexity of the sampling procedure, as seen below, a sample of only 48 cases was realized.

The number of households investigated (N=48) is of such a size that statistical analysis is problematical and rather large and

bulky for a qualitative case study procedure. This sample size was considered to be justified in the light of the exploratory nature of the study and the complexity of the subject matter. A compromise had to be made between the depth of investigation and the ability to generalize findings. Both qualitative and quantitative research techniques were therefore used.

4.3.4 Physical parameters used in the sampling procedure

As point of departure, the physical environment (geographical location and house type) was used as basis for the compilation of the sample. In order to identify groups representative of different stages of modernization, anthropological data on the form and features of the traditional South NDebele house were used to develop a broad guideline for the classification of various house types in terms of modernity. The five house types were: "Traditional;" "Transitional" which includes "Temporary (Shack)," "Self-help," "Provided;" and "Modern". This rough guideline was used during fieldwork to select a number of households, based on the physical features of the current houses, in each geographical area. Current housing conditions have been found to determine needs and expectations regarding future housing (Weidemann & Anderson, 1985).

able 4.1 The sample in terms of geographical area and house type

GEOGRAPHICAL AREA	HOUSE TYPE					
	TRADITIONAL	TRANSITIONAL			MODERN	N
		TEMPORARY	SELF-HELP	PROVIDED		
Weltevreden (Kwa Mabusa) Matjiesgoedkuil (Mrheletswane) 1 Klipplaatdrif (Matsherini)	9	--	--	--	4	13
Enkeldoornooog (Vezubuhle)	--	5	--	--	--	5
Ekangala (Bronkhorstspuit) 2	--	--	--	8	--	8
Witbank (Kwa Guqua)	--	--	6	2	2	10
Soshanguve 3	--	4	--	--	2	6
Atteridgeville	--	--	--	3	3	6
TOTAL	9	9	6	13	11	48

- 1 = Rural-agricultural (N = 13)
 2 = Rural-town (N = 23)
 3 = Urban (N = 12)

The two physical parameters used for the selection of households, geographical area and house type are defined and discussed below.

A variety of geographical areas had to be included in the sample to ensure that people who had been exposed to different types of modernizing influences were included. Geographical areas representative of the areas where people of South NDebele cultural identity are resident, were selected. This selection was done in collaboration with a social anthropologist. The different settlement patterns found in Kwa NDebele, as discussed by Van Vuuren (1983), were also considered as guidelines for the selection.

A classification of different types of housing was also used in the sampling procedure. Examples of houses at different stages of the modernization process had to be selected. Because not all types of houses are found in each geographical area, houses were selected to ensure that examples of all the different types of housing occupied by the research population were included in the sample. The various geographical areas and house types shown in Table 4.1 are discussed below.

(1) *Geographical area*

The following broad parameters were used:

Urban versus rural area

The distance of living areas from urban areas was used as basis for the selection of a variety of geographical areas. The urban environment has been found to be a major modernizing agent (Segall, 1980; Rapoport, 1978).

Street pattern

A distinction was drawn between formal (formal town planning and measurement of plot sizes) or informal street layouts (spontaneous settlement). Town planning that involves formal surveying and measuring of plot sizes was considered to be a "modern" feature of geographical areas.

Major economic activity

The most important economic activity in the area was considered to be a potential modernizing influence (for example agricultural versus modern industrial).

Based on these parameters, a number of broad categories were identified for use in the selection of geographical areas. The selected geographical areas and the grounds for inclusion of each were the following:

(a) *Rural farming area*

These areas include larger settlements of black people in the more traditional rural living environment and are characterized by agricultural activity on surrounding land, without a central business district or western-type industries. These settlements are further characterized by a street pattern that developed in a spontaneous way and had not been formally measured out (e.g. in rectangular street blocks). The main modernizing influence in these areas comes from workers who migrate to urban areas and then introduce new ideas and technologies on their return.

The selected rural areas, all in Kwa NDebele, include: Weltevreden (Kwa Mabusa), Matjiesgoedkuil (Mrheletswane) and Klipplaatdrif (Matsherini).

(b) *Rural towns*

These settlements are mostly found in close proximity to towns or cities, and are characterized by less farming and greater involvement in modern economic activity. Formal town planning and a distinctive rectangular or other "formal" street pattern are characteristic of these settlements. Inhabitants have more contact with western cultural influences such as the industrial workplace, formal schooling, industry and commerce.

Vezubuhle is an example of a settlement within commuting distance of a city (Pretoria). Kwa Guqua (Witbank) and Ekangala (Ekandustria, Bronkhorstspuit) are examples of settlements on the fringe of industrialized rural towns.

(c) *Urban area*

These living areas are characterized by extensive town planning and the availability of all western-type municipal

services such as water, electricity and water-borne sewage systems. Members of these households have continual contact with and are often involved in a westernized urban life-style and economic activity.

Shosanguve is a settlement on the fringe of the Pretoria urban centre while Atteridgeville is an example of an urban township.

(2) Different house types

Prior to fieldwork, a rough categorization of different house types was done according to a number of parameters thought to indicate different stages of modernization of house form.

This categorization was not applied in any systematic fashion during the selection of houses. Due to the difficulty of classifying houses purely on grounds of their physical appearance, this classification is arbitrary. Its purpose was to serve as a rough guide to ensure the inclusion of a variety of house types. Its use during the fieldwork phase is discussed below. The classification was recorded on the interview schedule and was included in the data used for analysis as the variable "house type."

The variable "house type" consisted of two components. It referred to the physical appearance of the house and the method of construction. Both were considered in terms of their relevance as indicators of the stage of modernization. In this categorization, anthropological information (Van Vuuren, 1983) on the traditional settlement patterns of the South NDebele was used as the "traditional" anchor point. At the modern end of the continuum, the typical European middle-class house was used as a guide. As a result of the urbanization process and lack of housing, informal shack areas are found in most town and urban areas. The informal and temporary house type, together with state-provided "township" houses and houses developed as part of low-cost housing schemes were considered to be examples of a

transitional stage in the modernization process.

The taxonomy of house types and the criteria for each category as used in this study are provided below:

(a) *Modern house type*

Houses were bought or contractor built on instruction of the owner. Typical "western" appearance with a pitched or flat corrugated-iron or cement-tile roof, large windows and with most living spaces in a single structure or under one roof.

(b) *The transitional stage includes three house types*

(i) *Provided house type*

Houses were built by employers or state agencies without the involvement of the occupant in the design. These houses were characterized by the often monotonous repetition of the same, mostly modern, designs and materials in the township development.

(ii) *Self-help house type*

These houses were self-built in the sense that the occupants provided some inputs into the construction of the dwelling. This category included examples where occupants functioned as owner-builders or made use of subcontractors. The assistance of other people in the design or construction of this category of houses usually came in the form of the provision of plans and materials. Examples were low-cost housing projects such as "plot-and-plan" or "site-and-service" schemes where some innovative low cost building methods were used. The designs often appeared to be typical, modern brick constructions while in many instances the materials were prefabricated (for example, plastered and painted concrete slabs).

(iii) *Temporary house type*

This category included self-constructed housing, mostly in the form of shelters, which primarily provide protection against the elements. This type of house was typically found in squatter settlements.

These houses appeared to be temporary, for example, quick-to-erect-and-remove corrugated iron. The economical use of materials was a primary factor in their design.

(c) *Traditional house type*

These were houses that shared a number of characteristics with the traditional NDebele house and kraal design. Because traditional cultures are not static, house designs inevitably change and no "pure" traditional house type can be described. The houses considered to be representative of the more traditional form or type already include a number of western or European features (Van Vuuren, 1983). The most important features used for classification purposes were:

Self-built on site with building material from the immediate area (soil, wood, grass). Houses had an "African" appearance characterized by traditional paintings and thatch roofing. Different (mostly separate) buildings were arranged around a central open area. This open area might be enclosed by a low demarcating wall.

4.4 THE RESEARCH PROCEDURE

4.4.1 Planning phase

The first phase of the research consisted of a number of exploratory talks with persons knowledgeable about South NDebele culture and housing. Interviews were conducted with an anthropologist, representatives of the Kwa NDebele Utility

Company involved in provision of housing in the former homeland area and with a number of housing officials of the township authorities. The information and insights gained from these interviews were applied at various stages of the planning of fieldwork and in the interpretation of findings.

Great care was taken to get permission from all the relevant government and traditional authorities to gain as much local support for the research as possible. In this regard the guidance of a social anthropologist knowledgeable about South NDebele culture and history and who performed extensive research on South NDebele settlement patterns was obtained. A written permit to work in the area had to be obtained from the then Kwa NDebele government.

An interview was conducted with the traditional head of the NDebele, King Mapoch and a number of his advisors, during which the aims and purpose of the study were explained. With his assistance, the co-operation of community leaders, in the rural areas mostly the tribal chiefs, was obtained. In each of the rural areas, a guide and interpreter/translator from the local community was appointed by the chiefs. In the rural-town areas the guides were municipal policemen, who were South NDebele members of the local community. No guide was used in the urban areas. In 39 cases interviews were conducted in Afrikaans, two in English and 7 in NDebele with the help of the interpreter/guide.

4.4.2 Fieldwork procedure

Within each geographical area the guide (who also acted as interpreter) introduced the researcher to the area. In each new location the first morning, or in some cases (the rural areas) the whole of the first day, was spent getting acquainted with the area and the different types of housing. While driving through the area and visually inspecting the different types of houses, the aims of the study and the different types of housing found

were discussed with the guide. The concept of modernity translated into "houses such as those in which the old people lived versus houses of young people from the city and of the white people" was met with almost instant recognition and was easily understood. Because of their intimate knowledge of the area, the guides easily pointed out the various types of housing. From these a number were selected for inclusion in the study.

4.5 RESEARCH METHOD AND INSTRUMENTS

The methods used for collecting data were:

- A structured interview (Appendix A) was conducted to obtain biographical information, information regarding the use of space and cognitive reactions and evaluations of the house from the respondents. An index of "the amount of involvement in design" (Appendix E), an index of the "amount of contact with modern models" (Appendix F) and the "attitudinal modernity scale" (Appendix D) were completed during the interview. These are dealt with below.
- Photographs of the house and plot (see appendix B for examples).
- Sketch plan of the plot and floor plan of interior spaces (see Appendix C for examples).

4.5.1 Description of physical environmental characteristics

Photographs and sketches of the plot, and a rough sketch of the floor plan of the buildings, were used to collect data on a number of physical features of the houses.

The physical characteristics of the different house types (traditional, transitional and modern), used in the sampling procedure could be compared. The aim was to determine if there was any consistency in the physical features of houses classified as a particular house type (for example, traditional houses) and

if the various house types differ in terms of their physical features.

The following physical environmental characteristics of the houses were recorded.

(1) *The plot and the built structures on the plot*

- Orientation to street
- Parts of the plot, presence and location of a list of functional spaces
- House location on plot (front, back, side)
- Number of separately built structures
- Layout: Attached/detached units
- Appearance: modern/mixed/traditional

(2) *Number, Type and Layout of inside spaces*

- The different functional spaces built
- Materials used for floor, walls, roof, ceiling were recorded. For this analysis only the material of the main bedroom was used.
- Facilities found in the house: Water source, toilet facilities, sewage and type of electricity supply (if any) were recorded.
- Dimensions: For each type of functional space the total floor surface, height of the ceiling and total window surface were recorded.

(3) *Index used for the determination of (a rating of) the modernity of house*

Based on the outcome of this qualitative analysis, a list of physical environmental characteristics that can be rated as

either closer to the traditional norm or closer to the modern norm, was drawn up. In this way an index of the "modernity of house" was created by scoring each characteristic as either indicative of the traditional norm (1) or of the modern norm (3) or falling in the "mixed" category (2) - the higher the score, the more modern the characteristics of the house. How the index of modernity of house was developed through qualitative analysis of the above-mentioned physical features is discussed in section 5.1. The index was used to rate each of the houses in terms of modernity.

4.5.2 Description of the human characteristics

Information on a number of human characteristics was recorded. Biographical information of the household was obtained during the structured interview.

The attitudinal modernity of the head of the household or most senior family member was measured with the attitudinal modernity scale of Inkeles as adapted by Thompson (1977). To test the validity of the attitudinal modernity scale for the research population, correlation analysis between scores obtained by means of the attitudinal modernity scale and various biographical characteristics was performed.

(1) *Biographical characteristics*

The following biographical characteristics were recorded:

- Tribal affiliation
- Language of the interview
- Gender of respondent
- Age of respondent
- Occupation of respondent
- Qualification of respondent
- Migrational histories of both the senior male and female (Where the majority of time was spent, in primarily rural or urban environments)

(2) *Description of the rationale and items of the attitudinal modernity scale*

The attitudinal modernity scale used in the study, is an adapted and shortened questionnaire based on the "Overall Modernity Scale" of Inkeles and Smith (1966, 1974). It was adapted for use with a South African sample of mainly black factory workers by Thompson (1977). This much revised scale is based on an eight dimensional model of the "modern man," developed by Thompson from the model of Inkeles and Smith. Brief descriptions of the eight dimensions of the model of the modern person are provided below.

(a) *Openness for new experiences*

The modern person is seen as one that is open to new experiences and to technological innovations and changes.

(b) *Democratic opinions*

The modern person is considered to be one that will accept varying opinions and will not reject an opinion just because it differs from his/her own.

(c) *Individualism*

The modern person is considered to be free from stringent obligations to the extended family group.

(d) *Value of time*

Time is viewed as a valued resource, and therefore punctuality and the ordering and management thereof is considered as important.

(e) *Efficacy*

Modern people accept personal responsibility for their own welfare and progress and try to be rational and objective in an attempt to understand their world. Technological skill is valued as a means of controlling the environment and for achieving progress.

(f) *Social reliability*

The modern person is reliable in interpersonal relationships and values this quality in others. This dimension includes an emphasis on social accountability for one's actions.

(g) *Dignity*

The modern person values other people as people and not only for their status. Achievement rather than age, sex or social position by birth (ascription) is viewed as important in the attribution of social status.

(h) *Value of planning*

Modern people are oriented towards the future, plans ahead and views planning as an important way in which to organize their lives.

Based on this model, Thompson (1977) constructed a questionnaire consisting of 75 items. The 75 items were selected from existing modernity scales and applied to a sample of 201 black South African factory workers. Results indicated, inter alia, that acceptable reliability could be achieved with a much shorter and therefore less cumbersome scale. This led to a second study (Thompson, 1980b) in which 31 items were selected from the original 75. The 25 items with the highest factor-loadings were included in the scale. This 25-item scale was applied to a

sample of 334 black workers in mainly unskilled job positions and delivered results that indicated good general reliability (Thompson, 1980b).

This scale was the one used in this study and is included as Appendix D.

4.5.3 The relationship between attitudinal modernity and the modernity of the house

A large number of variables in the sociophysical environment influence the relationship between the person and the home environment. The various sociophysical factors that influence the quality of the relationship (in terms of modernity fit) were combined into two principal factors.

- The amount of control occupants have over the physical/designed features of the current house through their personal involvement in its design.
- The amount and duration of contact with "modern models".

These were considered to be intervening variables that moderate the relationship between the modernity of the house and the attitudinal modernity of the occupants. A number of these moderating influences were identified and relevant dimensions thereof were used to formulate items to make up two indexes.

(1) *Index of involvement in design (control)*

An "index of involvement in design" was constructed to assess the amount of control people have over the physical features of their current houses. The index was aimed at determining the extent to which occupants actually are involved in the design, construction and maintenance of the built structures. It also included variables related to ownership, financial means and preparedness to invest money in the house.

This index further provides an indication of the extent to which

various factors (such as financial limitations and laws preventing the ownership of the houses and thus the ability to change it) result in people modernizing (adjusting) without being able to change their houses to fit their changing needs and values. The index should also indicate to what extent the physical environment can "change" or modernize without the involvement of the occupants. During urbanization people with more "traditional" attitudes and life-styles may, for example, have to live in more "modern" rented housing provided by government agencies.

It was expected that the greater the amount of involvement in design, the closer the fit between the modernity of the human component (attitudinal modernity score) and the modernity of the physical environment (modernity of house).

The items making up this index are included in appendix E. Results are discussed in section 5.3.1.(1).

(2) *Index of "the amount of contact with modern models"*

An index of the amount of contact respondents have with modernizing influences and agents was developed. This index included a number of variables shown to play an important role as media through which new cultural values and practices are transferred during acculturation. These variables included the amount of contact with people (of the own or other ethnic-cultural groups) who have been exposed to the views and practices of the western/European culture. Other people who have had more time to assimilate or accommodate aspects of the contact culture often act as models. Other variables included the amount of media exposure (radio and television) and exposure to the urban environment. It was expected that those respondents, who have had more contact with these modern models and influences, would achieve a higher score on the attitudinal modernity scale. These findings may thus provide support for the construct validity of the modernity scale.

The items forming this index are included in appendix F.
Results are discussed in section 5.3.1.(2).

(3) *An index of experience/ overall evaluation*

"Experience" is conceptualized as a psychological process that is both a function and cause of the quality of the relationship ("fit") between individual modernity and modernity of the house. A number of variables considered to be indicators of quality of experience were identified. The questions were formulated to tap as much qualitative information as possible about what is liked or disliked. The occupants were also asked if they had intentions to change the current house in the future (behavioural intentions). An attempt was made to include these variables in an index to provide an overall "quality of experience" score.

(a) *Aspects of experience*

The following aspects of experience were investigated:

(i) *Affective cognitive reaction*

Two general, open-ended questions were asked:

- What do you like most about the plot, and what do you like least about the plot? Please explain.
- What do you like most about the house, and what do you like least about the house? Please explain.

The aim of these questions was to elicit cognitive and affective aspects of the individual respondent's psychological reaction (subjective context) that they were able and prepared to describe overtly (shared objective context).

(ii) *Behavioural intention*

Questions were asked (1) about planned behaviour aimed at improving the quality of the occupant's "fit" to the residential environment (adaptive response) and (2) on whether any constraints on such behaviour were experienced.

* Plans to move from the living or geographical area

- Do you plan to move away from here? If yes, where to?

* Planned changes to the house and different spaces

- Is there anything that you would like to change about your house? Please explain (change what)?
- If yes, is there anything that prevents you from making the changes you want to? What?

* Difference between the current and a hypothetical new house

A third question regarding behavioural intentions was asked to determine if the occupants had drastically altered their conception of a house. It was a "what-if" type of question to obtain information on behaviour in a hypothetical situation. This type of question attempted to reduce the influence of constraining factors such as limited financial ability.

- If you have to build a new house now, will it look different from this one? In what way will it be different?

(b) *Index of the experience of home*

To obtain a score for the overall positive or negative evaluation of the house, the different variables considered to be indicators of the quality of the person's experience are combined into an index (see table 4.2). The manner in which the descriptive information on each of the experience variables was scored for use in the index is discussed below.

Table 4.2: Index of the experience of home

ITEM	SCORE
<u>Verbal description of experience</u> (Affective and cognitive reaction)	
These scores were obtained through qualitative analysis of descriptive information obtained with the questions discussed above.	
(a) <u>Evaluation of the plot:</u> (What respondents like and dislike about the plot.)	
A clearly negative evaluation	1
Both positive and negative reactions	2
A clearly positive evaluation	3
(b) <u>Evaluation of the house:</u> (What respondents like and dislike about the house.)	
A clearly negative evaluation	1
Both positive and negative reactions	2
A clearly positive evaluation	3
(c) <u>Behavioural intentions:</u>	
(i) Plans to move from the living area	yes no
	1 3
(ii) Plans to change the house	yes no
	1 3
(iii) Size of planned change: (Qualitative analysis of the type and degree of the planned change)	
<u>Larger changes</u> planned (indicating poorer current fit)	1
A new house, in addition to or replacing the existing one (for example a temporary corrugated iron structure), change to the number of rooms (extensions to the house), changes to appearance (e.g. larger windows, plastering the walls, new roof) and changes to or replacing the materials of some parts, for example brick instead of corrugated iron walls.	
<u>Minor changes</u> planned (indicating better current fit)	3
Where no changes were currently planned, merely the upkeep of the existing structure (e.g. painting) or the installation of power or water in the house.	
(iv) If a (hypothetical) new house will differ from the existing one. Different: Yes No	1 3
(v) Degree of difference from the existing structure (Qualitative analysis of the type of differences indicated)	
<u>Larger differences</u> (indicating poorer current fit)	1
Differences in type of material, overall appearance, size and number of rooms and layout of rooms (for example positioning of toilet or bathroom) and	
<u>Minor differences</u> (indicating better current fit)	3
(Where no differences were indicated, if positioning on the plot would be different and other small differences.)	

A maximum score of 21 and a minimum score of 7 can be obtained with the index.

(4) *The quality of the relationship or fit*

Pearson product-moment correlation coefficients were computed between scores on the respective modernity indexes in order to determine the strength of the relationship between the "modernity of house" and attitudinal modernity. The strength of the relationship between each of the modernity indicators and the moderating variables (contact and control) was also determined by means of correlation analysis.

Results are discussed in section 5.3.3.

(5) *Modernity fit and the experience of home*

(a) *The identification of various modernity-fit groups*

Groups of households were composed of those where a high and low degree of difference in terms of modernity existed. Two methods were used to identify groups of households in terms of modernity fit, cluster analysis and a graphical method. These methods are discussed in section 5.3.4 (1).

Results are discussed in section 5.3.4.(2).

(b) *Quality of fit and the experience of home*

Once the different groups had been identified in terms of modernity fit, qualitative techniques were employed to determine whether any patterns emerge. The different "modernity fit groups" were compared in terms of a number of indicators of experience of fit. These indicators include: experience (cognitive and affective evaluation as outcome variables) and behavioural intentions. The aim was to determine whether similar actions were planned and if patterns emerged in terms of the kinds of aspects of the physical environment that are liked and disliked.

The aim was to draw inferences on the extent to which the modernization process influences the experience of home in the different modernity fit groups. It was expected that the greater the difference between the attitudinal modernity and the modernity of the house, the more negative the experience of home as indicated by the indicators of the quality of the fit will be, for example:

- verbalizations indicating negative evaluation
- intentions to change the house

The fact that the different aspects of experience were all dependent on the current house as reference point or criterion, posed severe constraints. Even within each house type (as a class or category of houses) differences in the sizes, forms, and features of the houses can be found. Grouping houses together with the aim of determining patterns in, for example, the occupant's behavioural intentions, may not be valid because of the differences in the reference points. However, the aim was to determine if any patterns emerged with regard to the broadly defined "modernity value" of planned changes and intentions to change the house. Results are discussed in section 5.3.4.(3).

4.6 METHODS OF DATA ANALYSIS

The procedure followed in the analysis of the research findings are discussed briefly.

4.6.1 Descriptive information, qualitative analysis and the development of indexes

Descriptive information on the characteristics of the sample, in terms of both findings with regard to the physical features of the houses, and the characteristics of the occupants, is discussed for each of the different house types. For this discussion frequency analysis is used. Data used in the

frequency analysis were obtained through qualitative analysis of answers to open-ended questions and descriptive information gathered during the semi-structured interview.

Raw data comprised descriptive information, photographs and sketches and completed questions for the various indexes. Qualitative data were analyzed and code lists were developed after fieldwork. Code lists were constructed to lose the minimum of qualitative information. These were then used to categorize the descriptive material for frequency analysis.

Due to the small sample size, the data presented in the frequency analysis resulted in the number of observations in each being too small for testing the significance of differences between the various house types. The descriptive categories were therefore collapsed (combined) to increase the cell sizes (number of observations) in order to perform tests of significance of difference. For the discrete variables, chi square was computed. Where data allowed (for example, continuous variables such as measurements of floor and window surface and ceiling height), SAS ANOVA-F values were computed to test for significance of differences. Duncan's multiple range test was performed to indicate where significant differences between house types were found.

4.6.2 Validity and reliability of the various indexes

Validity (SAS ANOVA) (Ray, 1982) and reliability (Cronbach coefficient alpha) of the various indexes were computed. For the Attitudinal modernity scale, iterated principal factor analysis was performed on the assumption of a single underlying factor, attitudinal modernity. Owing to problems in the underlying factor structure, factor analysis with the assumption of more than one underlying factor was performed. Only the two factor solution provided interpretable results.

4.6.3 Relationship between the various indexes

As test of the relationships between the modernity of house and attitudinal modernity and the various moderating variables, the statistical interrelationships between the various indexes (Pearson product-moment correlation coefficients and analysis of variance coefficients (SAS ANOVA)) were computed.

4.6.4 Modernity fit and experience of home

The main hypothesis was that quality of the relationship, rather than either person or environmental variables, determines overall experience (of home) and behavioural intentions (plans to change or "adjust" the physical aspects of the house). To test if the relationship between the modernity of the house and the attitudinal modernity of the occupants can be related to particular evaluations and planned behaviours, the following procedure was followed.

Households which share a particular kind of "modernity fit" (for example, traditional attitudes in a traditional house type or traditional attitudes in a modern house type) were grouped together. To group households in terms of "modernity fit", two alternative methods, cluster analysis and a graphical presentation of modernity scores were used. These methods were compared. These methods are discussed with the presentation of results.

Analysis of variance was performed on the contact and control scores to obtain an indication of the amount of variance in "contact with the modern model" and "degree of control over the designed features of the house" explained by "modernity fit."

The various "modernity fit groups" were compared in terms of the indicators of "experience." To determine if variance in scores obtained with the evaluation and behavioural intention indices can be attributed to "modernity fit", analysis of variance was

performed for the various "modernity fit groups".

In an attempt to identify particular response patterns, qualitative and descriptive information on evaluations and behavioural intentions were performed. These findings are discussed separately for each of the "modernity fit groups."

CHAPTER 5 RESULTS AND DISCUSSION

The results of the present study are discussed in three parts. The first part discusses the physical environment (house and plot). Qualitative and descriptive information on the physical qualities of the houses is discussed with the view to develop an index for the "modernity of house". The second part discusses the human aspects of the relationship. Various sociodemographic characteristics of the sample are discussed along with results obtained with the Attitudinal modernity scale. In the third part various aspects of the relationship between the modernity of the house and the attitudinal modernity of the respondents are discussed. The following results are also discussed:

- the validity and reliability of the index of experience of home and the indexes that measure some of the moderating factors;
- the statistical relationships between the various indexes;
- identification of the various modernity fit groups; and
- the relationship between modernity fit and the indicators of experience.

5.1 DESCRIPTION OF THE PHYSICAL ENVIRONMENT

5.1.1 Description and comparison of the house types

Qualitative and descriptive data on the physical qualities and properties of the houses for each of the five house types are described separately. An "index of modernity of house" was developed from these results. Findings are discussed in section 5.1.2.

(1) *The plot and the built structures on the plot*

Sketches and photographs of the plot were analyzed to provide information on a number of physical characteristics of the houses.

(a) Orientation of the buildings on the plot

To ascertain if any pattern emerges regarding the positioning and orientation of the buildings on the plot, the direction into which the buildings face was determined. The "face" of the house referred to the main entrance of the built space and the side of the buildings which occupants pointed out as the front of the house. In the case of traditional houses, the entrance of the *esirhodlweni* (open space in front of the buildings enclosed by a low, demarcating wall) and the door of the centre building were used as indicators of the "face" of the house. In more modern houses, the front door and side with the larger windows indicated the "face" of the house.

Table 5.1 shows the frequency distribution for each orientation. Four orientations were found: houses were either oriented towards (facing) the street or not. In each case two alternatives were found, houses were either oriented towards north or some other direction.

Table 5.1: Frequency distribution of orientation of houses on the plot

Frequency	Face Street		Not street		<u>Total</u>
	North	Other	North	Other	
House type Traditional	3	4	1	1	9
Temporary	5	3	0	1	9
Provided	4	7	1	1	13
Self-help	1	3	1	1	6
Modern	3	5	1	2	11
Total	16	22	4	6	48

The majority of houses in the sample faced the street (38). A total of 20 houses faced north with the remainder (28) facing in

other directions. In South Africa, a north orientation has the advantage of improved sunlight penetration (light and heat) through larger north-facing windows. Twenty two of the 38 houses faced the street even though this meant loss of the advantages of a north orientation. It seemed as if facing the street was more important than orientation towards north. The various house types did not differ significantly in terms of orientation on the plot.

(b) *Presence and location of a number of functional spaces on the plot*

All visible signs of activity on the plot were recorded on sketch plans. Table 5.2 shows which of these features are specific to particular house types.

Table:5.2 Presence of a number of functional spaces on the plot

House type	Outside toilet	Vegetable garden	Flower garden	Cattle pen	Chicken shed
Traditional: (N=9)	9	7	0	7	4
Temporary: (N=9)	9	4	1	1	3
Provided: (N=13)	3	3	11	0	0
Self-help: (N=6)	1	0	4	0	0
Modern : (N=11)	4	1	7	2	2
TOTAL	26	15	23	10	9

(i) *Outside toilet*

An outside toilet was found in 26 cases. In all cases these were located at the back, or on the side but to the back of the plot. The majority of these were found in the traditional, temporary and provided house types. Only modern houses in rural areas had outside toilets.

(ii) *Vegetable and Flower gardens*

Of the traditional houses, only two did not have a vegetable garden. In all cases, excluding one of the temporary houses, the

vegetable gardens were located at the back or to the side of the plot. It is important to note that, of the temporary houses, only those in the rural areas had vegetable gardens, and none of those in the urban areas. The single modern house that had a vegetable garden was also located in a rural area.

The flower garden seems to be a modern feature in that it was only found in areas where provided, self-help and modern house types are found. Its location was not limited to any part, but it seemed, in most cases, to be found especially on the front part of the plot, then on the front and side and only then on the back part.

(iii) *Cattle pen and chicken shed*

These were only found in the rural areas and in traditional and temporary house types in those areas. Again, the two modern houses which had these were located in rural areas. All chicken sheds were located at the back of the house. The cattle pens were mostly in front of the houses, as is customary. In two cases (both traditional houses) they were located at the back.

(c) *House location on plot*

The location of the house on the plot was determined through analysis of where the bulk of the built surface was located. The front and back distinction of the plot, as indicated by the occupants, and left and right, when facing the house, were used as indicators of locality.

Results (Table 5.3) showed that, in terms of the front-back distinction, the traditional and temporary house types showed more variation than the provided and modern types. In the latter case, houses were mostly in the centre of the plot, probably due to smaller plot sizes (these were not measured).

Table 5.3: House location on plot

<u>Traditional</u> (N=9)					<u>Temporary</u> (N=9)				
Left Cent. Right Tot.					Left Cent. Right Tot.				
Back	1	2	-	3	B	-	1	1	2
Centre	1	3	-	4	C	-	2	1	3
Front	2	-	-	2	F	1	3	-	4
Total	4	5	-	9		1	6	2	9

<u>Provided</u> (N=11)					<u>Self-help</u> (N=6)					<u>Modern</u> (N=13)				
Left Cent. Right Tot.					Left Cent. Right Tot.					Left Cent. Right Tot.				
B	-	1	-	1	B	-	2	-	2	B	-	1	-	1
C	-	7	3	10	C	-	1	1	2	C	-	7	1	8
F	-	2	-	2	F	-	1	1	2	F	-	2	-	2
	-	10	3	13		-	4	2	6		-	10	1	11

In terms of the left-right distinction, the same pattern seemed to emerge. Provided and modern houses were located mostly in the central position. The traditional houses in this study tended to be located to the left. None of the provided, self-help or modern houses had this location. This finding can possibly be attributed to the fact that, traditionally, space is left open to the right to provide for the extension of the household by the male sons of the head of household (refer to section 4.3.2.).

(d) *Number of separate built structures*

Table 5.4: Frequency distribution of number of separate built structures for the different house types

Frequency	Single structure	Two structures	Three	Four + more	Total
House type Traditional	-	-	-	9	9
Temporary	4	3	2	-	9
Provided	9	3	1	-	13
Self-help	2	4	-	-	6
Modern	6	3	1	1	11
Total	21	13	4	10	48

All traditional houses consisted of four or more separate structures. The majority of other houses (transitional and modern) consisted of one or two structures only.

(e) *Layout: Attached/detached units*

Qualitative analysis of the photographs and sketches revealed what seemed to be a pattern in the layout of the different living spaces. There seemed to be a relationship between the number of separate built structures and modernity. To investigate this phenomenon, a rough classification was made of the extent to which different spaces were connected or detached.

Three categories were distinguished:

- Detached: Houses where all built spaces were enclosed by their own walls or not more than two rooms share a wall. There were no doors or openings connecting the spaces.
- Mixed: This category included houses with mixed features of

both the detached and attached categories (e.g. both a temporary shelter and a house under construction). Houses in which outbuildings were used as bedrooms were also included in this category.

- Attached: All inside spaces, excluding a store-room or garage outside, were covered by the same roof and all rooms shared at least one wall with one other room and had an (internal) opening or door that connected it to the rest of the spaces.

The results for the different house types are the following:

Table 5.5: Frequency distribution of number of houses with attached or detached built spaces for the different house types

Frequency	De-tached	Mixed	At-tached	<u>Total</u>
House type Traditional	5	4	-	9
Temporary	1	5	3	9
Provided	-	4	9	13
Self-help	-	2	4	6
Modern	-	2	9	11
Total	6	17	25	48

Table 5.5 shows that most houses in the traditional category were detached. In the majority of the modern houses built spaces were attached.

(f) Appearance

The variable "appearance" was included because overall appearance played a role in the initial classification of the different house types (see sampling procedure). Three categories were used for analysis of the photographs and sketch plans. The guidelines

used for classification in terms of appearance were larger aspects of the design as discussed below.

- Traditional: The major indicators were material such as a grass roof, signs of soil/mud walls (wall corners not straight lines), units arranged in a U-formation around an open courtyard (*esirhodlweni*).
- Mixed: This category included houses with a "township look" (monotonous repetition of the same "matchbox" style that looked mass-produced). Houses that appeared to be "temporary" due to the use of corrugated iron or non-durable material such as plastic or wooden sheeting were included in this category.
- Modern: Major indicators included a pitched or flat roof of durable material, the more precise (sharp) geometric lines of wall edges and the larger size of windows.

Table 5.6: Frequency distribution of type of appearance for the different house types

Frequency	Tradi- tional	Mixed	Modern	<u>Total</u>
House type Traditional	7	2	-	9
Temporary	-	9	-	9
Provided	-	8	5	13
Self-help	-	5	1	6
Modern	-	-	11	11
Total	7	24	17	48

Table 5.6 shows that the appearance of houses mostly corresponded with the classification of the various house types. Two traditional houses fell in the mixed category. Almost half of the provided and one of the self-help houses had a distinct modern appearance.

(2) *The physical features of the interior space*

For this analysis, sketches of the floor plan and various measurements of internal spaces were used. In some cases, information provided by the respondents was also used.

(a) *The different functional spaces*

Table 5.7: Frequency distribution of presence of functional spaces for the different house types

Frequency	N	Main bedroom	Lounge/ dining room	Kitchen	2nd bedroom	3rd bedroom	Bathroom and toilet
House type							
Traditional	9	9	2	9	9	6	-
Temporary	9	8	4	7	7	4	-
Provided	13	12	11	11	11	8	8
Self-help	6	6	5	6	6	2	5
Modern	11	9	7	10	9	8	8
Total	48	44	29	43	42	28	21

In the 44 cases for which data were available, the most rudimentary house found consisted of a single area used for multiple functions, including sleeping, washing, eating and living. In other houses more spaces were dedicated for particular functional purposes. In houses where two spaces were found, the second space seemed to be designated primarily as a kitchen or cooking area and was often used as a separate sleeping area for children. Where a third space was found it was usually designated as sleeping area. Only two traditional houses had a separate space indicated to be a lounge or allocated for general purposes such as family gatherings and conversation. This space, even in modern house types, often doubled as a dining-room. Even where called a "lounge," the space was often furnished with a dining-room table only.

The use of space for various domestic activities and how this changes as a result of modernization warrants more detailed analysis in further studies.

(b) *Materials used*

Due to problems experienced with data collection, the materials used for construction of four houses could not be obtained.

In a number of houses a variety of materials were used for construction. The various structures of a particular house were often built with different materials. To simplify analysis the material used for the bedroom or sleeping space of the head of household was used.

The chi-square test was performed to test if significant differences existed between the materials used for the various house types. In the presentation of results in the tables below, the types of material are arranged from left to right in the order of increasing modernity.

Due to the small sample, some of the cells had to be combined in order to perform the chi-square test. The sample was therefore divided into two, a more modern and a less modern group. The number of types of material also had to be reduced in order to perform the chi-square test (the double-lined cells indicate which cells were combined).

Chi-square results indicated significant differences between the types of material used for the two categories of houses (modern/provided/self-help and temporary/traditional). Results of the frequency analysis suggested that, with a larger sample, the various house types will also differ significantly in terms of the materials used for construction.

Table 5.8: Frequency distribution of types of material of the floor for the different house types

Frequency	Soil	Soil+ dung mix	Cement	Loose carpet	Full carpet	Tiles	Total
House type							
Traditional	0	5 ⁷	4	0 ¹⁰	0	0 ⁰	9 ¹⁷
Temporary	1	1	5	1	0	0	8
Provided	0	0	6	4	1	1	12
Self-help	0	0	5	1	0	0	6
Modern	0	0 0	3	3 ²²	2	1 ⁵	9 ²⁷
Total	1	6 7	23	9 32	3	2	44 44

Chi square = 15.0021

df = 2

p = 0.000553

n = number of observations in double-lined cells used for computing chi square.

Table 5.9: Frequency distribution of types of material of the walls for the different house types

Frequency	Soil+ wood frame	Soil+ dung bricks	Soil+ cement plast.	Corru- gated iron	Con- crete panels	Cement brick blocks	Clay bricks	Tot
House type								
Traditional	2	4	1 ⁸	1	0 ⁸	1	0 ¹	17 ⁹
Temporary	0	1	0	7	0	0	0	8
Provided	0	0	2	0	0	5	5	12
Self-help	0	0	0	0	5	0	1	6
Modern	0	0	0 2	0	0 5	3	6 20	27 ⁹
Total	2	5	3 10	8	5 13	9	12 21	44 ⁴⁴

Chi square = 20.256

df = 2

p = 0.00004

n = number of observations in double-lined cells used for computing chi square.

Table 5.10: Frequency distribution of types of material of the roof for the different house types

Frequency	Grass	Corg. Asbes- tos	Corru- gated iron	Cement Tile	<u>Total</u>
House type Traditional	7	0	2	0	9
Temporary	0 7	0	8 10	0 0	8 17
Provided	0	2	3	7	12
Self-help	0	4	1	1	6
Modern	0 0	0	7 17	2 10	9 27
Total	7 7	6	21 27	10 10	44 44

Chi square = 17.443

df = 2

p = 0.00016

n = number of observations in double-lined cells used for computing chi square.

Table 5.11: Frequency distribution of types of material of the ceiling for the different house types

Frequency	No ceiling	Asbes- tos cement	<u>Total</u>
House type Traditional	9	0	9
Temporary	8 17	0 0	8 17
Provided	10	2	12
Self-help	5	1	6
Modern	5 20	4 7	9 27
Total	37 37	7 7	44 44

Chi square = 3.482

df = 1

p = 0.062

n = number of observations in double-lined cells used for computing chi square.

There were significant differences between the types of material used in construction of the various house types. These data were included in the "modernity of house" index and therefore the differences between the types of material are not discussed in detail here. It was found that in the construction of traditional houses, materials from the immediate environment, such as soil and grass were frequently used. In transitional houses, these elements were mixed or combined with modern materials. Modern houses were constructed with prefabricated materials such as bricks and tiles.

(c) *Facilities found in the house*

There was a strong relationship between modernity of the house and the kinds of facilities found in the house. Owing to the small number of observations, chi square could not be computed for each of the different house types. Chi-square results indicated significant differences between the facilities found in the two categories of houses (modern/provided/self-help and temporary/traditional). Results of the frequency analysis suggested that, with a larger sample, similar results may be obtained for each of the house types.

Results for the different kinds of facilities found in the various house types are provided in tables 5.12 to 5.15. These results showed that traditional houses tended to have the following facilities: water obtained from a communal tap, tap on the plot or a bore-hole; pit latrines were the most common. The majority of houses did not have sewage facilities or electricity supply. Modern houses, on the other hand, had the following facilities: taps in the house; flush toilets; piped sewage and full electricity supply.

Table 5.12: Frequency distribution of types of water source for the different house types

Frequency	Well / bore- hole	Communal tap	Tap on own plot (outside)	Tap in house	Warm tap in house	<u>Total</u>
House type Traditional	2	7	0	0	0	9
Temporary	0	5	4 <u>16</u>	0	0 <u>0</u>	9 18
Provided	0	2	2	8	1	13
Self-help	0	0	1	5	0	6
Modern	0	4	0 <u>9</u>	3	4 <u>21</u>	11 30
Total	<u>2</u>	18	7 <u>25</u>	16	5 <u>21</u>	48 48

Chi square = 23.424

df = 2

p = 0.000008

n = number of observations in double-lined cells used for computing chi square.

Table 5.13: Frequency distribution of types of toilet facilities for the different house types

Frequency	Pit la- trine	Flush toilet on plot	Flush toilet house	<u>Total</u>
House type Traditional	9	0	0	9
Temporary	6 15	3	0 3	9 18
Provided	2	3	8	13
Self-help	0	1	5	6
Modern	4 6	0	7 24	11 30
Total	21	7	20 27	48

Chi square = 15.85326

df = 1

p = 0.000068

n = number of observations in double-lined cells used for computing chi square.

Table 5.14: Frequency distribution of types of sewage facilities for the different house types

Frequency	None	Piped sewage	<u>Total</u>
House type Traditional	9	0	9
Temporary	5 14	4 4	9 18
Provided	2	11	13
Self-help	0	6	6
Modern	4 6	7 24	11 30
Total	20 20	28 28	48 48

Chi square = 13.166

df = 1

p = 0.00029 (95%)

n = number of observations in double-lined cells used for computing chi square.

Table:5.15: Frequency distribution of types of electrical facilities for the different house types

Frequency	None	Street lights only	Own generator	Full power suppl	<u>Total</u>
House type Traditional	9	0	0	0	9
Temporary	8	0 17	1	0 1	9 18
Provided	2	0	0	11	13
Self-help	1	1	0	4	6
Modern	3	0 7	1	7 23	11 30
Total	23	1 24	2	22 24	48 48

Chi square = 20

df = 1

p = 0.000008 (95%)

n = number of observations in double-lined cells used for computing chi square.

(d) *Dimensions*

Analysis of variance (SAS ANOVA) was performed in order to describe differences between the physical dimensions of the different house types. The results are provided in tables 5.16 to 5.18.

(i) *Floor surface of the various functional spaces*

The significantly larger floor surface found for the traditional main bedroom can be related to the fact that this space has multiple functions in traditional society, and is not merely a place for sleeping. The sitting/dining-rooms in modern house types were significantly larger than those spaces in the transitional house types. The traditional house type did not differ significantly from the modern house type in this regard.

The traditional house type had the most floor space in the kitchen and the first and second bedrooms. The fact that traditional houses in general tended to have more floor space can be attributed to the lower cost of construction (natural materials) and larger plot sizes.

Table 5.16: Comparison of the different house types in terms of differences in total floor space (in square metres) of the different functional spaces

Type of space	House type	Mean surface (m2)	(N)	Duncan grouping	F-value	p-value
Main bedroom	1	26.444	(9)	A	11.49	0.0001
	5	14.889	(9)	B		
	4	10.667	(6)	B		
	3	10.417	(12)	B		
	2	10.250	(8)	B		
Sitting+ Dining-room	5	29.286	(7)	A	9.25	0.0001
	1	21.000	(2)	A B		
	2	15.750	(4)	B		
	3	12.727	(11)	B		
	4	11.400	(5)	B		
Kitchen	1	16.778	(9)	A	3.69	0.0124
	5	13.500	(10)	A B		
	2	12.857	(7)	A B		
	3	9.273	(11)	B		
	4	8.833	(6)	B		
Second bedroom	1	16.444	(9)	A	2.95	0.0328
	2	11.671	(7)	A B		
	4	11.333	(6)	A B		
	5	10.333	(9)	B		
	3	9.091	(11)	B		
Third bedroom	1	25.667	(6)	A	2.98	0.0403
	2	13.000	(4)	A B		
	5	12.375	(8)	A B		
	3	10.000	(8)	B		
	4	9.500	(2)	B		
Bathroom +toilet	5	5.25	(8)	A	2.17	0.1435
	3	3.75	(8)	A		
	4	3.00	(5)	A		

House types:

1=Traditional; 2=Temporary; 3=Provided; 4=Self-help; 5=Modern

Separate sitting-room (N = 6) and separate dining-room (N = 6), samples too small to compute SAS ANOVA F.

Table 5.17: Comparison of the different house types in terms of differences in height of the ceiling (in metres) of the different spaces

Type of space	House type	Mean height (m)	(N)	Duncan grouping	F-value	p-value
Main bedroom	5	2.621	(9)	A	11.62	0.0001
	4	2.467	(6)	A		
	3	2.417	(12)	A		
	1	2.146	(9)	B		
	2	1.988	(8)	B		
Sitting room	5	2.676	(7)	A	5.59	0.0025
	4	2.480	(5)	A		
	3	2.400	(11)	A		
	1	2.355	(2)	A		
	2	2.025	(4)	B		
Kitchen	4	2.467	(6)	A	5.56	0.0013
	3	2.391	(11)	A		
	5	2.315	(10)	A		
	2	2.071	(7)	B		
	1	2.053	(9)	B		
Second bedroom	5	2.577	(9)	A	6.78	0.0003
	4	2.467	(6)	A		
	3	2.409	(11)	A		
	1	2.187	(9)	B		
	2	2.100	(7)	B		
Third bedroom	5	2.574	(8)	A	4.10	0.0119
	3	2.412	(8)	A B		
	4	2.400	(2)	A B		
	1	2.167	(6)	B		
	2	2.025	(4)	B		
Bathroom and toilet	5	2.575	(8)	A	2.33	0.125
	4	2.480	(5)	A		
	3	2.375	(8)	A		

House types: 1=Traditional; 2=Temporary; 3=Provided; 4=Self-help; 5=Modern

(ii) *Height of the roof or ceiling*

A clear pattern emerged (Table 5.17) with regard to height of the roof or ceiling. (Where no actual ceiling was present, height was measured from the floor to the bottom of the roof trusses where they met the wall). In general, modern, provided and self-help houses had significantly higher ceilings than traditional and temporary house types. Higher ceilings seemed to be an important

feature of modern house types.

Table 5.18: Comparison of the different house types in terms of differences in the size of windows (total window surface in square centimetres) of the different spaces

Type of space	House type	Mean cm surface	(N)	Duncan grouping	F-value	p-value
Main bedroom	5	286.78	(9)	A	8.08	0.0001
	3	162.25	(12)	B		
	4	145.50	(6)	B C		
	1	67.00	(9)	B C		
	2	58.00	(8)	C		
Sitting room	5	514.7	(7)	A	6.55	0.001
	4	257.2	(5)	B		
	3	193.0	(11)	B		
	1	92.5	(2)	B		
	2	64.8	(4)	B		
Kitchen	3	134.64	(11)	A	2.53	0.0563
	5	117.50	(10)	A B		
	4	110.00	(6)	A B		
	1	65.44	(9)	A B		
	2	41.14	(7)	B		
Second bedroom	5	209.44	(9)	A	3.41	0.0181
	4	192.17	(6)	A B		
	3	126.73	(11)	A B C		
	1	95.67	(9)	B C		
	2	51.00	(7)	C		
Third bedroom	5	208.63	(8)	A	3.06	0.0369
	3	185.00	(8)	A		
	1	80.17	(6)	A		
	2	77.50	(4)	A		
	4	77.00	(2)	A		
Bathroom and toilet	5	63.00	(8)	A	0.99	0.3898
	3	50.38	(8)	A		
	4	41.40	(5)	A		

House types:

1=Traditional; 2=Temporary; 3=Provided; 4=Self-help; 5=Modern

(iii) *Size of windows (total window surface)*

Results (Table 5.18) indicated that larger window size can be associated with more modern house types. In general, the traditional and temporary house types had significantly smaller

windows than the modern house type. Significant differences were, for example, found between the sizes of windows of main bedrooms of modern and temporary house types. Differences between sizes of third bedroom and bathroom windows of the various house types were insignificant.

5.1.2 Index used for the determination of (a rating of) the modernity of house

Results obtained with regard to differences between the physical features of the various house types justify an attempt to construct an index to rate the modernity of the physical house features. The physical features discussed above were used to construct the items for such an index. These items are presented in Appendix G. Each feature was rated on a three point scale with 1 = traditional, 2 = transitional and 3 = modern.

(1) *Validity*

(a) *Construct validity of the modernity of house index*

All items referred to physical aspects of the house with the exception of items 1) layout and 2) appearance, which are more subjective judgements. The items referred to aspects that can be considered as "objective" entities in the sense that they are relatively independent of the influence of subjective human judgements. The rating of an aspect as more modern referred to what is technologically more advanced, for example: the kind of facilities such as toilets and sewage, or advanced kinds of material in terms of durability and strength. The classification of all these features in terms of modernity was, however, influenced by some subjective interpretation by the researcher.

(b) *Ability to discriminate among the various house types: SAS ANOVA*

Analysis of the amount of variance of the index of modernity of house, explained by the house type classification, yielded an F-value of 38.38 which was highly significant ($p = 0.0001$). Duncan's multiple range test indicated that both the traditional and the temporary house types differed significantly from each other and from the provided, self-help and modern house types in terms of modernity. The latter three did not differ significantly from one another in terms of their mean scores on the index of modernity of house.

This indicated that the index only discriminated at the lower levels of modernity of physical aspects. Perhaps a larger sample would enable a finer differentiation between the different materials in the index, and thus improve its ability to discriminate amongst more modern types of houses.

The convergent and discriminant validity of the index are considered in the discussion of intercorrelations with the other indexes (index of contact with the modern model and the index of involvement in design) in the following section.

(2) *Reliability*

Internal consistency was determined by means of the Cronbach coefficient alpha.

For the variables making up this index, a highly satisfactory coefficient of 0.890 for the raw data and 0.892 for the standardized scores was obtained. The variable "material used for the ceiling" yielded the lowest correlation with the total ($r = 0.350343$ for the standardized variable), probably due to the lack of variance. Excluding this item gave rise to an increase in the coefficient alpha from 0.89 to 0.90. This item was therefore dropped from the index for further analysis.

These results indicated that the index provided a reliable indication of the modernity of the houses.

(3) *Conclusion*

The good statistical performance of the index for "modernity of house" indicated that Hypothesis 1 can be accepted. This hypothesis stated: "It will be possible to construct an index that measures the "modernity of house" reliably." It is however important to note that the index only discriminated between houses at the lower levels of modernity. To be able to discriminate more effectively at other levels it will have to be extended to include more items which discriminate between various features of houses that lie toward the modern end of the modernization continuum.

5.2 DESCRIPTION OF THE HUMAN ASPECTS OF THE RELATIONSHIP

5.2.1 Sociodemographic characteristics of the sample

(1) *Tribal affiliation*

The respondents were all NDebeles. They were asked to indicate their tribal affiliation.

NDzundza	39
Manala	8
<u>Other</u>	<u>1</u>
<u>Total</u>	<u>48</u>

In the cases where the wife was of another ethnic cultural group (for example, Sotho) that of the male head of the household was given in response to this question. The wives also indicated that the traditional social custom of the male was mostly adhered to, for example in the *hlonipha* practices towards the husband's parents. In the urban areas, some respondents indicated that although they still considered themselves members (descendants)

of a specific tribal group, membership played no significant role in their lives. For example, in some cases (urban) adult males indicated that they had not undergone the customary initiation ceremonies and did not intend doing so.

(2) *Biographical characteristics of the sample*

The biographical information of the respondents is provided in table 5.19.

Table 5.19: Biographical characteristics of the sample

	N	%
Gender:		
Male	17	35,4
Female	31	64,6
Total	48	100
Age:		
20-35 yr	15	31,2
36-59	14	29,2
60 +	19	39,6
Total	48	100
Occupation:		
Retired	5	10,4
Unskilled	29	60,4
Skilled	14	29,2
Total	48	100
Quali- fication:		
None	24	50,0
Primary	14	29,2
Secondary	10	20,8
Total	48	100

	N	%
Migrational history:		
Male: (Husband)		
Rural	39	90,7
Urban	4	9,3
Total	43	100
Female: (Wife)		
Rural	40	85,1
Urban	7	14,9
Total	47	100

The relatively larger amount of females in the sample is mainly due to the fact that interviews were conducted in the day. Males were mostly at work or were migrant workers who only spent time home over weekends.

The age distribution showed that the sample was balanced in that

almost equal amounts of respondents in the young adulthood, middle age and older age groups were interviewed.

The three occupational categories were: Retired (these were all males); unskilled which included housewives (including elderly/retired females who still performed household tasks like cooking and caring for grandchildren) and unskilled labourers. The skilled category included all occupations where some kind of formal training or qualification is required. These included truck/delivery drivers, white-collar office workers, business owners (taxi owners, builders) or professional people (nurses).

Half the sample had no formal schooling at all. Approximately a further thirty percent had a standard five at the most and only twenty percent had some secondary or higher qualification.

The sample thus consisted mainly of people with low academic qualifications who performed mainly unskilled labour.

The migrational histories of both male and female were obtained. Data for spouses who had passed away were not included.

In this study migrational history referred to the place of birth and the area (rural or urban) where the person had spent most of his/her life. The rural category included farming areas and rural towns. An urban area referred to city areas like Atteridgeville in Pretoria and also the areas bordering on the urban centres, such as Soshanguve. Results indicated a very strong rural background for the majority of the respondents.

5.2.2 Attitudinal modernity

The psychometric qualities of the modernity scale were investigated. The testing of validity and reliability and the factor structure of the scale were complicated by the small sample size.

(1) *Factor analysis*

The point of departure for analysis of the results of the attitudinal modernity scale was that the scale measured a single principal factor, "overall attitudinal modernity." Iterated principal factor analysis of the attitudinal modernity scale (single factor) revealed that items 1, 2, 3, 15, 16 18, 19 22 and 23 yielded factor loadings below 0.2, indicating insignificant or even negative contribution to variance on the principal factor. In further analysis of overall modernity only the remaining 16 items were used.

Thompson (1980b), however, found evidence that the modernity construct is multi-dimensional and interpreted three factors. Using the data of this study, Henn (1988) also found problems in terms of the underlying factor structure. To analyze the factor structure in the present study further, factor analysis was performed, on an ad hoc basis, with the assumption of more than one underlying factor. Of these only the two factor pattern delivered interpretable results.

The essence of the items that loaded on these two factors (B1 and B2) are presented below in the order of size of contribution to variance on the respective factors.

The first factor (B1) referred to a general positive attitude towards modern science and technology. This factor seems to include an element of individual ability and responsibility. The items: attitude towards city life (4), value of education (5), science (22, 25), personal responsibility (6, 12, 7) and a democratic orientation (17) describe this factor.

The items that loaded on this factor are discussed summarily below. (See appendix D for the full items.)

(Item 4) Prefers to live in city rather than in the country.

(Item 19) When an interview is conducted, the views of the

wife are also important, and not only that of the male respondent.

(Item 5) A well-educated person should have more status in the community than one of royal birth but with little schooling.

(Item 22) A positive attitude towards birth control.

(Item 6) Punctuality on social appointments seen as important.

(Item 12) One's own efforts rather than destiny determines success in life.

(Item 25) Positive attitude towards the utility of science.

(Item 7) Accidents are the result of lack in taking care rather than the cause of bad luck or witchcraft.

(Item 17) Tolerant to differing views of politics and religion in the same family.

Interpretation of the second factor (B2) reveals that it referred to attitude towards gender and age status. The items: attitude toward the female role (10, 8, 21, 11, 24) and age as determinant of status (9, 13) describe this factor.

The items that loaded on this factor are discussed summarily below. (See appendix D for the full items)

(Item 10) Tolerant to having a female as supervisor in the workplace.

(Item 8) Woman should get the same pay for the same work.

(Item 21) Female child should get the same educational opportunities as a male.

(Item 11) Male should help with house chores and minding the children.

(Item 9) Not important to first consult with senior family members before making an important decision.

(Item 24) Positive attitude towards men and women working together.

(Item 14) Belief that science will eventually result in complete understanding of the causes of drought and

disease.

(Item 13) Young people do not have to have the same ideas and opinions as their parents.

These results supported the findings of Thompson (1980b), that items 21, 24, 8, 10 and 11 tend to group together as a factor related to "attitudes towards women" (p. 17).

Table 5.20: Factor pattern of the Attitudinal modernity scale

Iterated Principal
Factor analysis

Item	Factor 1
S21	0.63108
S10	0.61403
S11	0.55423
S9	0.55067
S6	0.44506
S25	0.43111
S17	0.42069
S5	0.40261
S4	0.37814
S13	0.36664
S12	0.32223
S8	0.28667
S7	0.27491
S14	0.25464
S24	0.21699
S20	0.17568
S22	0.14818
S19	0.14621
S15	0.14226
S16	0.10116
S2	0.03745
S3	-0.04998
S18	-0.14849
S23	-0.25598
S1	-0.39984

Varimax rotated two factor solution

Item	Factor 1	Factor 2
S10	0.77781	0.05392
S8	0.68325	-0.22847
S21	0.60896	0.16218
S11	0.55529	0.14268
S9	0.42895	0.37525
S24	0.42561	-0.17390
S14	0.25331	0.12216
S13	0.21929	0.20176
S15	0.11170	-0.00431
S16	0.09388	0.03123
S20	0.08596	0.07564
S23	-0.23156	-0.18894
S18	-0.31067	0.30696
S1	-0.47648	-0.10774
S4	0.09204	0.66040
S19	-0.02040	0.61390
S5	0.17549	0.41105
S22	0.10401	0.38314
S6	0.28424	0.38095
S12	0.06506	0.36435
S25	0.23014	0.30714
S7	0.18935	0.26161
S17	0.23878	0.24885
S2	0.02127	-0.06747
S3	0.08475	-0.19408

Variance explained
by this factor:
3.115713

Variance explained by each factor:
Factor 1: 2.923249
Factor 2: 2.150236

(2) *Validity and reliability of the Attitudinal modernity scale*

The Cronbach coefficient alpha was calculated for the sixteen items that loaded on the principal (16 item) "overall modernity" factor and for the items that loaded on each of the two principal factors.

For the 16 item scale, the Cronbach coefficient alpha was 0.3949 for the raw data and 0.746 for standardized scores. For the factor "Attitude towards gender and age status" the score for the raw data was 0.682939 and for the standardized variables 0.689293. For the "attitude toward science and technology" factor the coefficient for the raw variables was 0.66357 and for the standardized variables 0.663682. These results indicated good internal consistency for the 16 item scale and for each of the respective factors.

Intercorrelation between the modernity scale and scores on the various other indexes (presented in section 5.3.3) provided more support for the convergent and discriminant validity of the scale. For example, it was found that the two factors differed significantly in terms of the strength of their relationship to the house modernity index. This is discussed later.

(3) *Intercorrelation with biographical variables*

Table 5.21: Intercorrelation between attitudinal modernity and biographical variables

Biographical variable	r	p	SAS ANOVA F	p
Geographical area	0.56 *	0.0001	19,74	0,0002
Gender	-0.01	0.0587	0,00	0,9482
Age	0.51 *	0.0003	33,46	0,0001
Occupational level			10,79	0.0004
Qualification	-0.03	0,8543	16,58	0,0001
Migrational history (M)	0,29 **	0,0587	6,28	0,0191
Migrational history (F)	0,34 **	0,0191	26,83	0,0001

r = Pearson product-moment correlation coefficient with adjusted attitudinal modernity score (16 item).

p = Level of significance

* = Significant on the 0.1 % level

** = Significant on the 5 % level

Significant correlations with biographical variables were as expected. Analysis of variance (SAS ANOVA) indicated that the attitudinal modernity scale succeeded in discriminating between different subgroups of the sample, signifying acceptable discriminant validity. The city environment is considered to have a strong modernizing influence (Inkeles, 1966; Thompson, 1980b), which explains the relationship between geographical area and migrational histories (in terms of urban vs rural background) and the attitudinal modernity score. As could be expected, age was also strongly related to the modernity score with younger people achieving higher scores.

The fact that qualification did not correlate significantly with the modernity score stands in contrast to the literature on modernization which indicates that education has a very strong modernizing influence. It was, however, found that those respondents with high school qualifications achieved a higher mean modernity score than those with no or only primary school qualifications. Correlation between gender and attitudinal modernity was insignificant and no difference between mean

modernity scores of men and women could be found. It must be remembered that the small sample size could have influenced these results.

(4) *Conclusion*

The modernity scale, after exclusion of items that did not load on the two principal factors, showed good reliability. The validity of the scale was confirmed by intercorrelation with other indexes as was expected. Intercorrelation with various biographical variables (geographical area, migrational history and age) was also as expected, thus providing further support for the validity of the scale. Hypothesis 2, which stated: "The "attitudinal modernity scale" will provide a reliable indication of the modernity of the attitudes of respondents" can therefore be accepted.

5.3 THE RELATIONSHIP BETWEEN THE PERSON AND THE HOUSE

5.3.1 Variables which moderate the relationship between the person and the house

Variables considered to influence the relationship between the individual and the house during modernization were measured with two indexes: an index of involvement in design and an index of the amount of contact respondents have with modern models. Results of reliability tests performed on the indexes are discussed below. The extent to which these variables act as moderators of the relationship between the person and house is discussed in section 5.3.4.

(1) *Index of involvement in design (control)*

This index tapped information, from respondents, on those variables considered to influence the amount of control the occupant has over the designed features of the house. The index is provided in Appendix E.

The Cronbach coefficient alpha was computed to provide an indication of the internal consistency of the index. After the item on "financial ability to make changes," which showed no correlation to the total of the index ($r = 0.108$), was excluded from the index, a coefficient of 0.781028 for the raw data and 0.785961 for the standardized scores was obtained. This level of internal consistency is indicative of the reliability of the index as an estimate of the involvement of respondents in the design of their houses (amount of control over the physical form and features). Items which showed the highest correlation with the total of the index were: whether the occupant was involved in the design of the house ($r = 0.610$), whether the occupants supervised the building of the house ($r = 0.669$) and whether the house was owned or not ($r = 0.526$).

The poor item-to-total correlation coefficient obtained with the item on "financial ability to make changes" needs further consideration. The majority of people did not have the financial ability to make all the desired changes to their houses, which resulted in lack of variance in the responses to this question. Lack of financial ability did not, however, mean that they were not involved in the design and construction of their houses. It was found that people who lack financial ability were still involved in incremental design and construction of their houses as money became available.

Hypothesis 4, which stated: "The index of "the involvement of occupants in the design of their houses" will be reliable," can be accepted.

(2) *Index of the amount of contact respondents have with modernizing influences and agents*

This index tapped information, from respondents, on those variables considered to be modernizing influences. The index is provided in Appendix F.

The Cronbach coefficient alpha was 0.877 for the raw data and 0.878 for standardized scores. These results indicated that the index provided a reliable indication of the amount of contact respondents have with modernizing influences and agents.

These coefficients were obtained after three items with negative or very poor item-to-total correlations (below 0.2) were excluded from the index. They were the items on: ownership of a radio, the frequency of listening to radio broadcasts and if anyone in the household had worked as a domestic servant in a western/european household. Hypothesis 5, which stated that the index of "the amount of contact with modern models" will be reliable, is therefore accepted.

The index showed good convergent and discriminant validity. These results are discussed with the other main variables. (Refer to the intercorrelation matrix in section 5.3.3.)

5.3.2 Experience of home as indicator of the quality of the relationship between person and house

(1) *Index of experience of home (Dependent variables: experience and behaviour)*

The index showed poor internal consistency as measured by the Cronbach coefficient alpha. A coefficient alpha of 0.397 for the raw variables and 0.368 for the standardized variables were obtained. These results indicated problems with index construction. Hypothesis 8, which stated: "The "index of experience" will provide a reliable measure of individuals' subjective evaluation of the quality of the relationship between themselves and the house," can therefore not be accepted.

As could be expected, the items "if the occupants want to change the house" and "the size of that change" correlated ($r = 0.67158$). The items "if the hypothetical new house would be different" and "how it would differ (in terms of size of

differences)" also correlated positively ($r = 0.55646$). No correlation between the evaluation of the house and the evaluation of the plot was found ($r = 0.19062$).

The poor performance of the index warrants further investigation. The way in which the index was constructed (as discussed in section 4.5.3 (3)) shows deficiencies. A number of these are:

- The construction of an "index of experience" was problematical because experience is a complex psychological process and not a singular evaluative outcome.
- In view of the low levels of formal education and schooling in sections of the research population, use of a Likert- or Thurstone-type scale for the measurement of the indicators of experience was considered to be inappropriate. Open-ended questions were asked about subjective evaluations and behavioural intentions (plans to change the house). These variables were considered to be indicators of experience. This qualitative and descriptive information was analyzed in order to obtain scores for use in the index. The items of this index were therefore, to a very large degree, based on qualitative interpretations by the researcher.
- Some of the assumptions upon which interpretations rest might not be correct. These interpretations were based on an assumption that people who have a negative experience of their houses will name more negative features when asked what they like and dislike about their houses. The behavioural intentions of the occupants were scored on the assumption that less satisfied people will want to effect larger changes to their environments. Constraints such as the occupant's ability to make changes (lack of financial ability and that the house may not be owned) could, however, moderate responses regarding the size of planned changes. These factors might have led to fault variance and thus were detrimental to the reliability of the index.

In further analysis, the total index score was not used. The "experience" variable was referred to in terms of its separate indicators. In further statistical analysis, use was made of the scores for the items:

Cognitive affective reaction:

- overall evaluation of the house (what is liked and disliked) and
- overall evaluation of the plot (what is liked and disliked)

and

Behavioural intentions:

- the size of planned changes (what people plan to change) and
- degree of difference between the current and a hypothetical new house (how a new house would differ from the existing house).

The item on "intention to move" was excluded from further analysis because only one person indicated an intention to move.

To investigate the relationship between modernity fit and experience, qualitative analysis of the descriptive data on each of the various experience items was performed. Results of this analysis are discussed in section 5.3.4 (3).

5.3.3 The statistical relationships between the modernity of the house, the attitudinal modernity of respondents and indexes that measure the various moderating factors

The strength of the relationships between the various variables is discussed below. The intercorrelation matrix presented in table 5.22 shows the strength of relationships (Pearson product-moment correlation coefficient) between the modernity of house index, the attitudinal modernity score and the various other index scores.

(1) *The relationship between modernity of house and attitudinal modernity*

The results (Table 5.22) showed a highly significant correlation between the two indexes ($r = 0.482$; $p = 0.0005$). These results confirmed the hypothesis (H3 in section 4.2) that there is a relationship between the modernity of house and the attitudinal modernity of the occupants. This supported the assumption of "fit" between the attitudinal modernity of people and the modernity of the houses they live in.

The size of the correlation coefficient is noteworthy. A very high correlation coefficient would have cast doubt on the independence of the measures. This was clearly not the case and it confirms that these indexes measured distinct aspects of the same underlying factor (overall modernity).

The intercorrelation between modernity of the house and scores for each of the two principal factors of attitudinal modernity differed significantly. This indicated that some aspects of attitudinal modernity were more closely related to the modernity of the house than others. The modernity of the house was more strongly related to those aspects of attitudinal modernity (Factor 1) that refer to attitudes towards education, city life, individual responsibility, technology and science ($r = 0.544$; $p = 0.0001$). Scores for the attitudes towards gender and age status (Factor 2) did not correlate with scores on the modernity of the house index ($r = 0.219$; $p = 0.1344$).

Table 5.22: The relationship # between modernity of house, attitudinal modernity and factors that moderate the relationship

r p	Modernity of the House	Att. Modernity Full (16)	Att. mod. Factor 1	Att. mod. Factor 2	Contact with mod. model	Involve- ment in design
Modernity of the House	1.000 0.0					
Att. Modernity Full (16)	0.482 * 0.0005	1.000 0.0				
Att. mod. Factor 1	0.544 * 0.0001	0.774 * 0.0001	1.000 0.0			
Att. mod. Factor 2	0.219 0.1344	0.834 * 0.0001	0.351 ** 0.0146	1.000 0.0		
Contact mod model	0.582 * 0.0001	0.456 * 0.0011	0.549 * 0.0001	0.225 0.1238	1.000 0.0	
Involve- ment in	-0.574 * 0.0001	-0.069 0.6403	-0.251 0.0855	0.169 0.2501	-0.300*** 0.0382	1.000 0.0
Plans to Change	-0.017 0.9065	0.042 0.7767	0.109 0.4602	0.048 0.7475	0.149 0.3125	0.015 0.9197
What change	0.223 0.1276	0.259 0.0754	0.250 0.0873	0.159 0.2838	0.486* 0.0005	-0.184 0.2112
New house different	0.111 0.4537	-0.056 0.7081	-0.060 0.6863	-0.075 0.6128	-0.092 0.5361	0.227 0.1208
Type of difference	-0.012 0.9352	0.165 0.2633	0.072 0.6260	0.207 0.1584	0.009 0.9522	0.271 0.0624
Evaluation of house	0.007 0.9637	-0.175 0.2331	-0.193 0.1895	-0.019 0.8959	-0.147 0.3203	0.275*** 0.0587
Evaluation of plot	-0.097 0.5107	0.198 0.1765	0.076 0.6063	0.363 ** 0.0111	0.127 0.3912	0.505* 0.0003

Pearson product-moment correlation coefficients

* = Significant on the .1 % level
 ** = Significant on the 1 % level
 *** = Significant on the 5 % level

(2) *Intercorrelation between the modernity of the house and the other indexes*

(a) *Intercorrelation between the modernity of the house and contact with the modern model*

This significant relationship ($r = 0.582$; $p = 0.0001$) can be explained by the fact that more modern houses are found in the urban areas where the occupants have more contact with western models. It thus provided some support for the convergent validity of both the indexes. Both indexes measured related aspects of modernity and therefore one could expect that there would be a statistical relationship (correlation between the scores) between the two indexes.

(b) *The relationship between modernity of house and the amount of involvement in design of the house (control over design)*

As indicated by the significant negative correlation ($r = -0.574$; $p = 0.0001$), inhabitants of more traditional houses had more control over and involvement in the design of their houses. Control decreased as houses become more modern. This is in accordance with research literature. A feature of the process of modernization is that occupants tend to lose control over the design of their housing. In more modern societies, house construction becomes the specialized function of professionals (Lawrence, 1983). Traditional houses are mostly designed and constructed by the occupants, while more modern urban houses are either constructed by professionals for the occupants or have been provided by state agencies. It is only in exceptional cases, where architects can be afforded, that users have significant control over the design of their modern houses (see sections 2.2.3 and 3.5.3.(2)).

The significant positive correlation, in this study, between modernity of house and attitudinal modernity indicated that

amount of control, as measured by the present index, was not the only factor that determined the quality of the relationship or fit. The strong negative relationship between modernity of the house and the amount of control people had over the design of their houses, indicated that lack of control in more modern houses did not seem to result in a general poor "fit" between people and their houses. Other factors, such as the choice of houses and time for adaptation, seemed to influence the strength of the relationship.

(3) *The relationship between attitudinal modernity and the other indexes*

(a) *The relationship between attitudinal modernity and the amount of contact with the modern model*

A significant positive correlation coefficient between the index of contact and the attitudinal modernity scale ($r = 0.45624$; $p = 0.0011$), and between the index of contact and the attitudes towards "modern science and technology" was found ($r = 0.54863$; $p = 0.0001$). These findings supported the assumption that the amount of contact people have with modern models acts as a moderator of attitudinal modernity. People who had had more contact with western models tended to have adapted their attitudes towards the modern norm. This provided some evidence in support of the city and modern media contact as modernizing (acculturative) agents and provided support for the validity of the attitudinal modernity scale.

The poor correlation between the index of contact and attitudes towards gender and age status ($r = 0.22522$; $p = 0.1238$) is important. This supported the suggestions of Rip (1977) and Triandis et al. (1986) that acculturation and modernization take place at different rates in different aspects of culture. Contact with the modern model results in change of some attitudes (more positive attitudes towards modern science and technology: which includes attitudes toward education, personal

responsibility, and city life) and not others (those towards gender and age status). It is possible that attitudes towards education, technology, city life etc. are formed and influenced through formal schooling and in developed technological environments such as the workplace and city/town living areas. Attitudes towards gender and age status are formed and influenced in the privacy of the home environment. In the latter case there are less opportunities for cultural contact and therefore these attitudes show more resistance to change.

(b) *The relationship between attitudinal modernity and involvement in design*

Attitudinal modernity showed no correlation with involvement in design, while modernity of the house correlated negatively with involvement in design. This provided further proof of the independence or discriminant validity of the modernity indexes.

Although not significant ($p = 0.0855$), there was a slight negative correlation ($r = -0.251$) between factor 1 of the attitudinal modernity scale (B1) and the involvement in design score. As could be expected from the finding that modernity of the house correlated significantly with both factor 1 attitudinal modernity and involvement in design, people with less modern attitudes did tend to be slightly more involved in the design of their houses than those with modern attitudes. The poor strength of this relationship (low correlation coefficient), however, showed that people with modern attitudes were still involved in the design of their houses, or people with less modern attitudes might live in houses in which they had no involvement in the design.

(4) *Contact with the modern model*

(a) *The relationship between contact with modern model and involvement in design*

The significant negative correlation ($r = -0.300$; $p = 0.0382$; Table 5.22) showed that the more contact respondents had with the modern model, the less they were involved in the design of their houses. This was understandable in light of the finding that higher contact with the modern model scores was related to higher modernity of house scores (ref. 5.3.3 (2)(a)). Modern houses were mostly designed and constructed by professional developers or government institutions (see (2)(b) above). More traditional houses were mainly found in rural areas where the chance of contact was less and these houses were usually self built.

(b) *Relationship between contact with modern model and the size of planned changes*

This result ($r = 0.486$; $p = 0.0005$) as reflected in table 5.22 indicated that more contact with the modern model is related to smaller planned changes. The item "size of planned changes" was scaled in such a way that a higher score would indicate smaller planned changes. This was considered to be indicative of a more positive experience.

This finding can be attributed to the fact that more contact occurs in urban settings, where less can be changed because houses are often rented from government institutions (see negative correlation with involvement in design, above). Houses in urban areas tended to be more modern. Larger changes to these houses will be more costly (especially material and cost of construction) than is the case with more traditional houses (where more use is made of material from the immediate environment).

Contact with the modern model correlated positively with both

modernity of house and attitudinal modernity (see above), supporting the view that it acts as a moderator in the relationship.

(5) *Involvement in design*

(a) *The relationship between involvement in design and evaluation of the plot*

The unexpected significant correlation (Table 5.22) between involvement in design and evaluation of the plot ($r = 0.505$; $p = 0.0003$) can be attributed to the possibility that plot size and ownership acted as mediating variables in the relationship between these measures.

Plot size can be considered as a mediating variable in this relationship. In cases where people were more involved in the design of their houses, for example, in more traditional rural settings, plot sizes were bigger and thus elicited more positive and less negative comments. Less involvement in the design of modern houses can be associated with the smaller plot sizes of modern houses in urban areas, which elicited more negative evaluations of the plot.

Ownership may act as another mediating variable. If people owned their plots, they were less critical of the plot (resulting in more positive evaluation) and tended to be more involved in the design of the house. The fact that the plot was owned and could not be changed, possibly resulted in adaptation to the plot, less negative comments and a more positive score overall for evaluation of plot. If rented, the possibility for adjustment existed (by moving to another plot), people might not have adapted and responded in a more negative way to the plot.

(b) *The relationship between involvement in design and evaluation of the house*

There was a significant positive relationship (Table 5.22) between involvement in design and evaluation of the house ($r = 0.275$; $p = 0.0587$). The finding that people who are involved in the design and construction of their houses tended to evaluate it more positively was as expected.

Involvement in design correlated better with evaluation of the plot than with evaluation of the house. This can partly be attributed to the way in which the evaluation scores were obtained. A higher number of negative comments made on the house and plot were scored as a more negative evaluation. Compared to the plot, the house can be changed more easily. Because there was still room for improvement, occupants tended to be more critical in terms of what they like and dislike about their houses. Houses, therefore, received more negative comments and were subsequently scored as if evaluations were more negative.

Ownership might also moderate the difference in strength of the relationships (see above). Those who did not own the house and plot are unlikely to have been involved in the design of the house and will evaluate both plot and house more negatively.

(6) *The indicators of experience: overall evaluation and behavioural intention*

No significant correlations were found between the various indicators of experience (overall evaluation and behavioural intention) and either the modernity of house score or the attitudinal modernity score (Table 5.22).

The modernity of the house was not related to whether people had an overall like or dislike of their plots and houses, nor to the size of planned changes or the degree of difference between the current and a hypothetical new house. These findings were

significant in the sense that one would perhaps have expected people in less modern environments to dislike their current environments (negative overall evaluation of house and plot), and to have intentions to change their houses in the direction of the more modern norm. It could be expected that the more traditional the house, the greater the size of the changes that would have to be made.

Results, however, did not support the assumption that all people would like their houses to be modern. Although this may seem obvious, current housing programmes, even the so-called low-cost alternatives, tend to reflect a strong western (modern) bias.

Attitudinal modernity scores, like the scores for modernity of house, did not correlate significantly with any of the scores obtained for the various indicators of experience. The implication seemed to be that it is not the modernity of the house, nor the modernity of the person (as indicated by attitudinal modernity) that "determines" peoples' overall evaluations (likes or dislikes) or behavioural intentions. These findings provided tentative support for the assumption on which the hypothesis is based that it is the relationship or fit between modernity of house and attitudinal modernity, rather than each on its own, that determines evaluation and planned behaviour. The low correlation coefficients could, however, also be the result of measurement error due to the indirect way in which the scores for the various evaluation items were arrived at.

(7) *Conclusion*

Hypothesis 6 stated that "scores on the "contact with the modern model" and "involvement in design" indexes will explain the strength of the relationship between scores on the "modernity of house index" and the "attitudinal modernity scale." The findings discussed under sub-sections (2), (3), (4), (5) and (6) above, seem to provide some evidence in support of this hypothesis.

However, further research with a larger sample and the use of more sophisticated statistical procedures such as path analysis will be needed to test this hypotheses adequately. The "involvement in design" and "contact with modern models" indexes measured aspects of the respondents' interaction with their sociophysical environment that had an influence on the quality of their relationships with their housing. This provided some support for the utility of the concept of "modernity fit" as basis for the proposed approach to the determination of what to design for whom. The extent to which different "kinds" of relationships between people and their housing can be classified successfully in terms of "modernity fit" are discussed below.

5.3.4 Modernity fit and the "fit group" classification

Hypothesis (H7) (section 4.2) stated: "It will be possible to identify various groups of people in terms of the fit between the modernity of characteristics of their current housing and the attitudinal modernity of the individuals."

The strong positive correlation between modernity of the house and attitudinal modernity, as previously discussed, supported the assumption of a relationship or "fit" between the attitudinal modernity of people and the modernity of their housing. It was expected that various types of relationships between the attitudinal modernity of people and the modernity of houses (various "modernity fit groups") would be related to specific evaluations of their housing and plans to change the houses. The purpose of the classification of people in terms of "modernity fit" was to group people with similar housing needs and values together.

(1) *Methods used for the identification of different "fit groups"*

Two methods were used to perform the fit group classification. In the first instance cluster analysis, a statistical procedure

which groups cases in terms of the closeness of association between scores on two variables, was used. The second method made use of a graphic presentation of the cases (households) in terms of the two indicators of modernity.

(a) *Cluster analysis*

The SAS programme "Clusters" (Ray, 1982), with the use of the "Equal Variance Maximum Likelihood method" was performed to group cases in terms of the closeness of their association in terms of scores on the modernity of house index and scores on the factor "attitude towards modern science and technology."

From the different trials, a three- and a six-cluster option resulted in interpretable groupings. Figure 5-1 shows the six-cluster (1,2,3,4,5 and 6) and the three-cluster (1+6, 4 and 3 + 5 + 2) solutions. Cluster 6 contains only a single case. Although this indicated that various groups can be identified, in terms of the closeness of association between the scores obtained for the cases in each group, the significance of the differences between these groupings still had to be tested. Results of the SAS ANOVA procedure are discussed below.

(b) *Graphic presentation of the distribution of the cases*

Owing to the significant positive correlation between modernity of house and attitudinal modernity, a graphic presentation of the distribution of the cases will show a spherical configuration around a centre "fit-line," which would indicate a perfect correlation (line A-B in figure 5-1). If poor or no correlation existed, graphic presentation of the distribution of scores would have shown a circular pattern or the lack of a discernable pattern.

In figure 5-1 the positive correlation, between "modernity of house" and the factor "attitude towards modern science" (see section 5.3.3 (1)), is graphically illustrated by the absence or

relative lack of cases found in the upper left-hand corner and the lower right-hand corner of the graph (where extreme high and low scores on the respective indexes for a specific case would have been shown). With the exclusion of case (household) numbers 12 and 48, the graph shows an almost perfect spherical distribution of cases (spheres between points A and B).

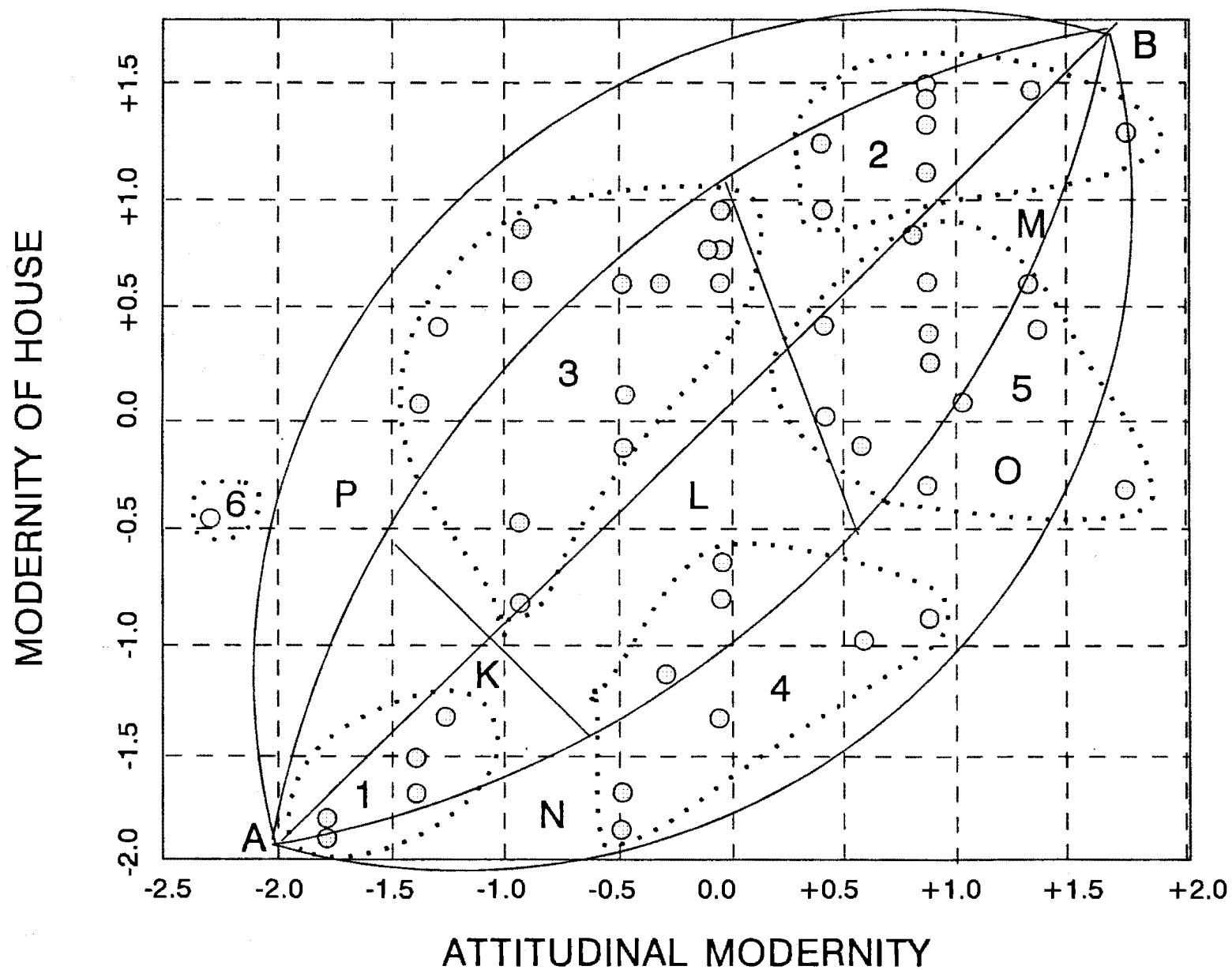
As standardized scores were used in this analysis, one can assume that the 45 degree line will indicate the hypothetical "fit" or perfect correlation between the modernity of house and attitudinal modernity. Figure 5-1 shows an equal number of cases (N=23/25) on each side of the 45 degree line.

Those cases lying closer to the 45 degree line will indicate better modernity fit while those further away will be the cases where greater differences in terms of the respective modernity indicators are found, thus displaying "lack of fit". Owing to the spherical configuration, however, the closer a specific case lies to the extremely low and high position on the line, the more significant the distance from the fit line will be (less distance needed to indicate "lack of fit"). To divide the 48 cases into "better fit" and "poorer fit" groups, a cut-off line was drawn as a smaller sphere. The positioning of the cut-off line was arbitrary. It was drawn to exclude, from the centre "fit group," only those cases that clearly lie on the extremes.

The 48 cases were thus divided into the three "fit groups":

- those cases where the degrees of modernity of house and attitudinal modernity are of comparable size (the "good fit" group, indicated by the smaller sphere closest to the 45 degree line),
- those where the house is more modern than the person (a "poor fit" group, indicated by the upper half-sphere (P) in figure 5-1) and
- those where the person is more modern than the house (a "poor fit" group, indicated as the lower half sphere (N and O) in figure 5-1).

Figure 5-1: PLOT OF MODERNITY OF HOUSE BY ATTITUDINAL MODERNITY



6 Clusters = 1; 2; 3; 4; 5; 6. 6 Graphic groups = K; L; M; N; O; P. A-B = Perfect fit.

Due to the fact that large differences (with regard to the level of overall modernity) were found in the "good fit" group, it was further divided into three: "good traditional fit" (K), "good transitional fit" (L) and "good modern fit" (M). Cases where the house is more modern than the person (P) did not show large variation in either modernity of house or attitudinal modernity scores and were included in a single "poor fit" group. Where the person is more modern than the house large differences between the respective modernity indicators were found. These cases were divided into two "poor fit" groups (N) and (O). A total of six "fit groups" were thus identified by means of the graphic method.

(2) *Analysis of variance of the main variables according to the "fit group" classification*

Analysis of variance was performed to determine how much of the variance on each of the main variables (involvement in design, the amount of contact with the modern model and the indicators of experience) were explained by the modernity fit grouping. SAS ANOVA was performed separately for each set of "fit groups," identified by means of cluster analysis (Table 5.23) and the graphic method (Table 5.24) respectively. Because the six-cluster solution of the cluster analysis resulted in cluster 6 containing only a single case, analysis of variance (SAS ANOVA) was only performed on the five remaining clusters.

Duncan's multiple range test indicated where significant differences between groups or clusters were found. The Duncan grouping uses the same alphabet letter to indicate the lack of significant differences between groups. Groups which differ significantly on a specific variable have different alphabet letters.

(a) *Contact with modern models*

The amount of contact respondents had with modernizing influences and the amount of control people had through their involvement

Table 5.23: Analysis of variance to compare "modernity fit" groups identified by means of Cluster analysis, in terms of the main variables and the indicators of experience

Dependent Variable		Modernity fit groups (Cluster analysis: 5 Clusters)					ANOVA (F) (p)	
Contact with modern model	Group \bar{X} N=(47)	2 4.17 8	5 3.48 12	3 3.28 14	4 2.70 8	1 2.15 5	4.91	0.0024
	DUNCAN	A	A B	A B	B C	C		
Involve-ment in design	Group \bar{X} N=(47)	4 1.94 8	1 1.93 5	2 1.71 8	5 1.67 12	3 1.63 14	3.86	0.0093
	DUNCAN	A	A	B	B	B		
Plan to change house	Cluster \bar{X} N=(47)	2 1.75 8	5 1.50 12	4 1.50 8	1 1.40 5	3 1.29 14	0.37	0.8292
Size of planned change	Cluster \bar{X} N=(47)	2 2.25 8	5 1.67 12	1 1.40 5	3 1.29 14	4 1.25 8	1.95	0.1198
	DUNCAN	A	A B	A B	B	B		
Will new house be different	Cluster \bar{X} N=(47)	2 2.50 8	1 1.80 5	5 1.67 12	3 1.57 14	4 1.00 8	1.21	0.3211
Size of difference	Cluster \bar{X} N=(47)	5 2.33 12	2 2.00 8	1 1.80 5	3 1.71 14	4 1.50 8	1.03	0.4040
Evaluation of plot	Cluster \bar{X} N=(47)	5 2.42 12	2 2.38 8	4 2.38 8	1 2.20 5	3 2.07 14	0.35	0.8435
Evaluation of house	Cluster \bar{X} N=(47)	1 2.40 5	2 2.25 8	3 2.07 14	5 2.00 12	4 1.88 8	0.50	0.7392
Duration of stay	Cluster \bar{X} N=(48)	1 22.20 5	3 11.43 14	2 7.38 8	4 7.00 8	5 4.67 12	2.72	0.0420
	DUNCAN	A	B	B	B	B		

able 5.24: Analysis of variance to compare "modernity fit" groups identified y means of the graphic method, in terms of scores on the main variables and he indicators of experience

Dependent Variable		Modernity fit groups (Graphic method)						ANOVA (F) (p)	
Contact with modern model	Group \bar{X} N=(48)	M 3.81 15	O 3.58 5	L 3.30 13	P 2.66 5	N 2.56 5	K 2.15 5	3.48	0.0102
	DUNCAN	A	A B	A B C	A B C	B C	C		
Involve-ment in design	Group \bar{X} N=(48)	N 1.98 5	K 1.93 5	P 1.76 5	M 1.70 15	L 1.66 13	O 1.64 5	2.34	0.0577
	DUNCAN	A	A B	A B	A B	B	B		
Want to change house	Group \bar{X} N=(48)	M 1.67 15	L 1.46 13	K 1.40 5	O 1.40 5	N 1.40 5	P 1.00 5	0.46	0.8053
Size of planned change	Group \bar{X} N=(48)	M 2.07 15	L 1.46 13	K 1.40 5	O 1.40 5	N 1.00 5	P 1.00 5	2.02	0.0953
Will new house be different	Group \bar{X} N=(48)	M 2.20 15	P 1.80 5	K 1.80 5	L 1.46 13	O 1.40 5	N 1.00 5	0.74	0.5944
Size of difference	Group \bar{X} N=(48)	M 2.20 15	O 2.20 5	K 1.80 5	P 1.80 5	L 1.77 13	N 1.40 5	0.64	0.6728
Evalu-ation of plot	Group \bar{X} N=(48)	O 3.00 5	P 2.40 5	K 2.20 5	M 2.20 15	N 2.20 5	L 2.15 13	0.88	0.5033
Evalu-ation of house	Group \bar{X} N=(48)	P 2.60 5	K 2.40 5	M 2.20 15	N 2.00 5	L 1.85 13	O 1.80 5	1.15	0.3499
Duration of stay	Group \bar{X} N=(48)	K 22.20 5	L 10.92 13	P 9.20 5	N 8.20 5	M 6.73 15	O 2.80 5	2.08	0.0874
	DUNCAN	A	A B	B	B	B	B		

in the design of their houses were expected to act as moderators of the differences between the groups. Results of analysis of variance (SAS ANOVA) for both methods of fit-group classification confirmed the role of contact with the modern model as moderator of the relationship between the modernity of the house and the attitudinal modernity of the occupants. On the "index of amount of contact with the modern model," cases lying closer to the lower left-hand corner of the graph (traditional houses and attitudes) obtained significantly lower scores than cases lying closer to the upper right-hand corner (modern attitudes and modern houses).

For the "contact with modern model" variable, SAS ANOVA indicated significant differences (Table 5.23) between clusters 2 and 1, and between clusters 2 and 4. Cluster 5 and cluster 1 also differed significantly from each other.

Significant differences were found (Table 5.24) between graphic groups M and K, between graphic groups M and N and between O and K.

(b) *Involvement in design*

The variance in "involvement in design," found between the various clusters, seemed to be related to the differences between the "modernity of the houses" (vertical axis). The strong positive correlation between these indicators was discussed in section 5.3.3 (2). When the attitudinal modernity of the respondents was taken into consideration this trend was still present.

Clusters 4 and 1 did not differ from each other with regard to the "amount of involvement in design" variable. Respondents in these clusters were significantly less involved in the design of their houses than respondents in clusters 2, 5 and 3.

The graphic groups showed a similar pattern. Respondents in

graphic group N, were significantly more involved in the design of their houses than those in graphic groups O and L.

(c) *The length of exposure*

On the "length of exposure to the specific environment" variable (number of years resident in the specific house), SAS ANOVA indicated that respondents in cluster 1 had lived in their houses significantly longer than any of the others. Graphic group K similarly differed from P, M, N and O.

(d) *The indicators of experience (Evaluation and behavioural intention)*

SAS ANOVA results indicated an absence of significant differences between either the clusters (Table 5.23) or graphic groups (Table 5.24) on the various indicators of experience ("want to change house," "size of planned change," "will new house be different," "size of difference," "evaluation of house" and "evaluation of plot"). These results are discussed in detail below.

(e) *Conclusion*

"Modernity fit groups," identified with both the cluster analysis and the graphic methods, differed significantly with regard to mean scores for the "involvement in design" and the "amount of contact with the modern model" variables and for the variable "length of exposure." Hypotheses 7 which stated: "It will be possible to identify various groups of people in terms of the fit between the modernity of characteristics of their current housing and the attitudinal modernity of the individuals" can thus be accepted.

For both the "amount of contact" and the "involvement in design" indexes, higher F values were obtained with cluster analysis than with the graphic method. Cluster analysis thus provided superior results.

(3) *"Modernity fit" and the "experience of home"*

It was expected that, where a high degree of difference between the modernity of the people and the environment existed (the "poor fit" groups), indicators of experience would show:

- more verbalizations indicating negative evaluation and
- intentions to make more and larger changes to the house.

Results of the analysis of variance (SAS ANOVA) did not provide evidence in support of hypotheses 9 and 10, which stated: "Various modernity fit groups will explain people's cognitive and affective evaluation of the relationship (more positive experience in "fit groups" or more negative experience in "non fit groups")"; and "Groups of people, identified in terms of modernity fit, will share similar plans for action regarding changes to their housing."

The relationship between the modernity of house and the attitudinal modernity, as indicated by various "modernity fit groups," was not related to the indicators of "experience of home" as measured in this study.

An explanation for these results could be sought in the problems with the way in which scores for the various indicators of experience were obtained. The problems with the measurement of the indicators of experience were discussed in section 5.3.2.

In an attempt to overcome these limitations, the original descriptive information (raw data) on the items considered to be indicators of experience (evaluation and behavioural intention) was analyzed separately for each of the clusters. The aim was to provide some indication of the extent to which similar cognitive and affective evaluations and plans for action were shared in each of the "modernity fit groups." Although the findings discussed below cannot be considered as conclusive, some general trends were identified that suggest some avenues for further research.

(4) *Qualitative analysis of the indicators of experience for each of the modernity fit groups*

The aim of this qualitative analysis was to identify possible patterns in the aspects of the physical environment that are liked and disliked (evaluations) and patterns in the behavioural intentions of the respondents (planned changes to the house).

(a) *Traditional fit group (cluster 1)*

With regard to evaluation of the house, respondents in this group (cluster 1: traditional houses and traditional attitudes) mainly took a non-critical stance toward their houses. An explanation can possibly be found in adaptation theory. Because they had built the house themselves, the occupants optimally adjusted the physical environment and adapted to that which they could not change.

This finding supported the view of Alexander (Lawrence, 1983) (see section 3.5) that houses in more traditional societies tend to develop in an unselfconscious way. House form and features in traditional societies tend to change in a slow and incremental fashion (Lawrence, 1983). The tendency of respondents "not to question the way things are" can be seen as a display of acceptance and conservatism.

Regarding behavioural intentions (plans to change the house), there were three instances where the occupants planned on replacing the old soil and dung house with a new one of cement bricks. The reasons were to prevent the necessity for replastering of mud plastered walls after rain. Two respondents indicated that the new house would have the same disconnected layout and thatch roof as the existing house. The third respondent indicated that the new house would have all rooms connected in a single structure. Although this can be seen as indicative of modernization, it is important to note that the layout of the rooms in the new house (which was under

construction) still reflected the more traditional practice of arranging sleeping space around a common open space, in this instance the lounge and not the *esirhodlweni*. This is quite different from the layout preferred by respondents in the modern fit group (see (b) below). Other behavioural intentions mainly centred around normal maintenance and upkeep of the buildings.

(b) *The modern fit group (cluster 2)*

Evaluations of the house by respondents in this group (cluster 2: modern houses and modern attitudes) showed emphasis on the importance of the size of rooms and the number of separate spaces for various domestic activities. Specialization of rooms for particular household functions seemed to be desired. Separation of the toilet from the bathroom, boys' room from that of the parents, and the lounge from the kitchen was desired or liked.

Planned changes (behavioural intentions) were generally directed towards the addition of more modern features, such as a ceiling, a geyser and garage. An exception to this trend was instances where the occupants had plans to build an outside room for boys and an outside toilet for guests. These responses, and others regarding the internal layout of internal space, may be indicative of retention of aspects of traditional culture. This phenomenon was analyzed further and is discussed below.

(i) *The relationship between the lounge (sitting-room) and kitchen*

The layout of these rooms with regard to each other resulted in complaints about privacy. The lounge (sitting-room) seems to have replaced the *bandla* as the venue where the male head of the household receives his visitors and where formal discussions of family matters take place. The kitchen is a space traditionally designated as "female" territory. The fact that in some open-plan designs the lounge is not separated from the kitchen, resulted in a number of complaints about the lack of privacy for

both males and females.

Gender and status still seemed to play an important role in the division of space in the house. The lounge was male territory while the kitchen remained female territory, even in the highly modernized group. This was also supported by the finding that factor two of the attitudinal modernity scale, which referred to attitudes towards gender and age status, did not to change at the same rate as factor one, which included attitudes towards education, science and technology. The way in which the physical layout of space facilitates or hinders the expression of these cultural values may influence both the satisfaction with the house and the impact of modern designs on social stability and health.

(ii) *Separation of the bedrooms/living space of older boys*

Respondents in the modern fit group preferred that older boys live separately from the rest of the family. A number of respondents in this group planned to add a separate bedroom outside for this purpose. An alternative plan was to create a separate entrance to the "boys' room". This seemed to indicate retention of traditional practices. Traditionally, the boys' hut, unlike the girls' hut, does not share the *esirhodlweni* in front of the main hut, and is usually located close to the cattle kraal. In modern, connected houses, this custom continued in the practice of separating the boys' sleeping space from that of the parents.

(c) *The transitional fit group (cluster 3)*

The transitional status of the cases in this group (cluster 3: transitional houses and moderate attitudinal modernity scores) was signified by the fact that evaluations seemed to be influenced by a mixture of both traditional and modern requirements.

A number of responses signified adherence to a more traditional lifestyle, for example, a father who bought the adjacent plot for his son to build his house next to him. The father was also unhappy about lack of space for the *bandla*. Uneasiness about having a toilet in the house and next to the kitchen, and complaints about lack of space on the plot to plant *marog* (traditionally used for making beer) were also indicative of problems with adjustment to modern amenities and plot sizes. To ensure continuation of some traditional functions in modern spaces, some new solutions had been found. "Modern spaces" that seemed to fulfil the role and function of the traditional *bandla* included: an umbrella put up outside, use of the garage and the use of the lounge.

A number of modern amenities such as electricity, running water in the house, ceilings, built-in cupboards, the "connectedness" of built spaces and the "modern appearance" of large windows and a solid wooden front door elicited positive evaluations, or were indicated as intended changes to the house.

(d) *The poor fit group (cluster 4 = modern attitudes in traditional houses)*

Compared to cluster 3, houses in cluster 4 were less modern, while the respondents achieved higher scores on the attitudinal modernity scale. Four of these houses were classified as "traditional house types," while four were classified as "temporary house types."

Evaluation of houses in cluster 4 showed similarity to the evaluation responses found in cluster 1 (traditional fit). Five of the eight respondents in this group could not indicate what they liked or disliked about the house, showing the same passive acceptance and non-critical stance displayed by respondents in cluster 1. In one case a house with a modern "connected" (attached) layout was under construction. The "connectedness" of the rooms elicited the only positive evaluation in this group. Two respondents liked everything about the house, and one stated that everything must be "right" because they had built it themselves.

Despite the lack of criticism of their current, often temporary housing, a total of six of the eight respondents had plans for, or were actually building, new houses. Five of these planned houses had the modern "connected" layout, while one indicated plans to retain the traditional separation of rooms.

In view of the fact that they were busy building new houses, the respondents in this group appeared to accept the temporary status of their current housing. The fact that they had made plans (behavioural intentions) and were busy executing adjustments seems to have resulted in a lack of criticism of their temporary housing.

This finding indicated that survey techniques that merely aim to determine preferences for, and likes and dislikes of, features of current housing may be inadequate. The behavioural intentions and planned alterations should be considered as well. Regarding the hypothetical new house, respondents in this group mostly showed concern about basic layout of rooms and the quality of materials used for construction. Unlike the modern fit group (cluster 2), little detail of the kinds of modern features which would be installed was provided.

(e) *Poor fit (cluster 5: modern attitudes in transitional houses)*

In comparison with cluster 3, houses in cluster 5 achieved the same modernity score, but the respondents achieved higher attitudinal modernity scores. While cluster 3 respondents indicated a preference for those features considered to be indicative of retention of traditional customs, few cluster 5 respondents showed similar preferences.

Compared to cluster 4, houses in cluster 5 were more modern, while the attitudinal modernity of the respondents did not differ much. Evaluations and planned changes showed far more refinement and detail of the kinds of features, mostly modern, desired.

Analysis of the indicators of experience (evaluations and behavioural intention) indicated very little difference between the responses of this group and those of cluster 2 (modern fit). These respondents had accepted or adapted to the smaller plot sizes. The behavioural intentions were also similar. For example, the emphasis fell on finishing the house with more modern amenities such as larger windows, tile floors, installation of electricity and ceilings.

(f) *General trends*

A number of more general trends, irrespective of modernity fit group, can be identified. These are briefly listed below.

- Size of the house and number of bedrooms were important.
- The importance of a large lounge/dining-room (for males) and kitchen (for females) as reception areas was repeatedly stressed.
- The size of the main bedroom was also important, while that of the other bedrooms was seldom mentioned.
- Separation of the boys' room from the rest of the house was an important feature.
- Separation of male and female functional spaces (lounge /

kitchen) was repeated by a number of respondents.

- Separation of the bathroom and toilet was mentioned and the need for an outside toilet for guests was repeatedly encountered.
- General complaints about the quality of material and construction were found.

(g) *Conclusion*

Qualitative analysis of evaluations and behavioural intentions suggested that the classification of "fit groups" in terms of "good" or "poor" fit can only be considered to be accurate for the extremes of the modernity continuum (traditional fit and modern fit). The transitional stage seemed to be a general "lack of" or "poor fit" stage.

Some support for adaptation theory was found. Qualitative analysis of evaluations and behavioural intentions indicated that people attempt to optimize their sense of balance, harmony or fit with their sociophysical surroundings. Very few people were actually found to be "satisfied." Almost all respondents were busy with or had plans to alter their houses.

It was however found that not all respondents wanted their houses to be "modern." Respondents in clusters 1 (traditional houses and attitudes) and 4 (where houses were more traditional, but attitudes more modern), showed a preference for more traditional features in their houses (for example in layout). Some "modern" features and facilities such as taps and electricity were however also desired. Where respondents had higher attitudinal modernity scores (clusters 2 and 5) their desire for higher quality, and more modern finishing of their houses increased. Respondents in clusters 2 and 5, who occupied transitional houses, seemed to desire more basic modern features such as a connected layout, better quality materials and construction and a modern appearance. Among respondents who already had more "modern" houses, a desire for further improvements with more modern

finishings was found.

Broad trends have been identified in the evaluations and behavioural intentions found in each of the clusters, with indications that some clusters do indeed differ from others in this regard. Although some support for hypotheses 9 and 10 was thus found, evidence is too scant to suggest that the current methods of identification of various groups of users have practical value. These trends do, however, suggest that it is possible to identify various groups of users in terms of "modernity fit" and that these groups do share similar housing needs and values. With a larger sample, and with more refined measures of "modernity of house" and "attitudinal modernity," the identification of various "types of relationships" between people and their houses (in terms of "modernity fit"), may be more accurate.

CHAPTER 6 SUMMARY OF FINDINGS AND CONCLUSION

This study set out, in chapter 2, to investigate some of the most prominent problems of research on and design of housing in countries characterized by rapid social change. Two problem areas were focused on. Firstly, the problem of designing housing for the multi-cultural and rapidly changing South African population was considered. In this regard the need to involve the users in the design of their houses was stressed. This indicated a need for social research to assist in the design of houses in South Africa.

A number of problems related to the theory and practice of research and design were discussed as the second problem area. Emphasis was placed on the lack of applicability of the findings of social research in the design of houses. This problem was related to the fundamental differences in the theoretical orientations of social researchers and design professionals.

Some of the primary responsibilities of the researcher as mediator in the relationship between users and designers, were identified. This role was considered to include, inter alia, the responsibility for the development of a theoretical framework that takes into account the differences between the perspectives of the various participants in the process of participatory design.

This role further included the development of a research approach that is applicable in the particular circumstances in developing countries. The diversity of sociocultural needs and values that have a bearing on the design of houses in these countries requires a novel approach to the determination of "what to design for whom." It was proposed that the "modernization" and "modernity fit" concepts can be useful in this regard. Modernization can be used to describe the relationship between people and their housing in terms of the effect of the changing sociophysical environment on the quality of the relationship

between people and their housing.

6.1 THE THEORETICAL FRAMEWORK

The principal aim of the framework for the relationship between person and environment was to account for the diversity of perspectives of people from diverse sociocultural and scientific backgrounds.

The differences between the theoretical orientations of researchers and designers were related to the differences in the research emphasis or typical units of analysis employed in research by these professions. The interrelationship between the aspects they focus on was highlighted. Social researchers and design professionals focus on different but interrelated phenomena. These phenomena can be related to two contexts in which the relationship between person and environment can be studied, a "subjective sociophysical context" and an "external sociophysical context."

6.1.1 The practical utility of the framework

Through emphasis on the two contexts in which aspects of the relationship between person and environment can be studied, both the subjective aspects of "home" (typically investigated in the social sciences) and the physical or objective aspects of "house" (typically the domain the design professions) were accounted for by the framework.

The framework thus accounts for both the designers' need for information on physical/objective design criteria and the social researchers' emphasis of the subjective meanings of these physical elements.

The framework will be useful during participatory design. It promotes sensitivity to the diversity of perspectives of the individual participants and the sociocultural values which

underlie these perspectives.

The framework accounted for the dynamic nature of the relationship between person and home environment. The interaction between the individual and social group and how various sociopsychological processes induce constant change and development in the relationship were considered.

6.2 THE PROPOSED APPROACH TO THE DETERMINATION OF "WHAT TO DESIGN FOR WHOM"

The study proposed an approach through which groups of individuals, who share similar needs and requirements regarding their housing, can be identified for inclusion in a process of participatory design.

In this approach the focus fell on the continual change of the person-environment relationship. Social processes of group formation and psychological processes of experience and behaviour were emphasized. The "modernity" and "modernization" concepts were discussed in terms of their applicability to the study of change in the relationship between person and environment in rapidly developing countries. The modernization process, in this study, referred to the total process of social and cultural change and thus encompassed conceptions such as innovation, acculturation and westernization. The modernization process and concept of modernity were applied to both human and non-human aspects of the relationship and both subjective and objective aspects of the relationship between these. They were also applied to both individuals and groups and the interaction between them.

The modernization process was seen as a psychosocial process through which individuals and social groups develop newly-shared attitudes and social identities and through which the physical aspects of houses change. During rapid sociocultural change (modernization), the interaction between individuals and social

groups, and between people and the physical environment, may result in the development of different (new) kinds of relationships between people and their housing. A number of intervening variables (for example, the amount and duration of contact with other cultures and the ability to control the physical features of the house) influence the degree of sociocultural change. The result is that a variety of relationships between person and home environment may develop. In some of these relationships the fit between person and home environment will be good and in others the fit will be poor.

The utility of the theoretical framework as applied in the proposed approach was tested in an empirical study. A summary of the main results is provided below.

6.3 DISCUSSION OF THE FINDINGS

6.3.1 The modernity of the house

The "index of the modernity of house" was developed through analysis of descriptive data on the physical qualities and properties of various types of houses.

Some of the most important findings from analysis of the descriptive information of the physical environment are provided below.

(1) *Descriptive information on the plot and built structures on the plot*

- The majority of houses faced the street rather than north.
- The outside toilet was usually located on the back of the plot.
- Vegetable gardens were only found in rural areas and seemed to be a feature of traditional house types only.
- Flower gardens seemed to be a modern feature.
- Cattle pens and chicken sheds were only found in rural

areas. Where they were found they were located in the customary position on the plot. Cattle pens were found in front of and chicken sheds behind houses.

- Modern house types were located centrally on the plot while traditional houses tended to be located to the left.
- Most traditional houses were detached and consisted of four or more separate structures. Modern houses, on the other hand, were attached and seldom consisted of more than two separate structures.
- Houses in general had an appearance which corresponded with the house type classification. Transitional house types tended to have a more modern rather than traditional appearance.

(2) *Description of the physical features of the interior space*

- The manner in which space in the house is divided and designated for various domestic functions and where these functions are performed in the house showed a lot a variation across the various house types. The subject warrants more detailed analysis in further studies.
- The materials used for the floor, walls, roof and ceiling differed significantly for two categories of houses (modern/provided/self-help and temporary/traditional). With a larger sample, finer differentiation between the various house types will be possible.
- The facilities in the house differed significantly across the various house types.
- The sizes of rooms of the various house types also showed significant differences. Traditional houses had more floor space in the kitchen and main bedroom. Both the traditional and modern houses had significantly larger sitting/dining-room areas.
- Modern houses had higher ceilings.
- Large windows were a feature of modern houses, particularly the windows of the main bedroom and reception areas.

(3) *The index of "modernity of house"*

The index of modernity of house was based upon the findings of the analysis of the above-mentioned descriptive information. This index provided a measure of the modernity of the physical form and features of houses (physical environmental characteristics). All houses were evaluated in terms of the index.

Results indicated that the index has acceptable reliability and that hypothesis 1 can be accepted.

The convergent validity of the index was confirmed by a significant positive correlation with the index of contact with the modern model and the significant negative correlation with the index of involvement in design. Analysis of variance (SAS ANOVA), however, indicated that it only discriminated effectively at the lower levels of modernity of physical aspects.

Both the traditional and the temporary house types differed significantly from each other and from the provided, self-help and modern house types in terms of modernity. The latter three did not differ significantly from one another in terms of their mean scores on the index of modernity of house. The results obtained with this index may be improved with a larger sample, and with the inclusion in the index of items which discriminate more effectively among more modern physical housing features.

(4) *Discussion*

The good performance of this index can be seen as a significant outcome of the study. Development of the modernity of house index was an attempt to include the physical aspects of the environment (objective context) in an essentially psychological study. Modernization is a social change process, and the "modernity of the physical house" thus presents an example of the

way in which the social process influences the physical (objective) features of the environment.

The concept "modernity of house" included references to both the objective features of the physical environment and a subjective aspect related to the social meaning of those features. The "modernity of house" index provided information on the physical aspects of design in terms of its social and psychological meaning.

The "modernity of the house" can possibly be a component of the meaning of "home". The extent to which people involved in rapid sociocultural change attribute a subjective "traditional/modern" value or meaning to their houses or aspects thereof should be investigated in further research.

The current index of modernity of house could have been influenced by the subjective evaluations of the researcher. Community members themselves should rather be involved in the development of the modernity of house index.

Other aspects of the design of houses can also be considered for inclusion in the index. An example is the extent to which modernization can be related to differentiation of spaces for particular functions. Boersema (1987) has undertaken some work in this field from a social anthropological perspective. He found, for example, that particular spaces (e.g. the eating space) were used in a variety of ways in different households in two non-urban communities. Furthermore, the use of these spaces in a particular household changed from time to time according to the particular social circumstances, for instance whether the head of the household (who in many cases migrates to his/her workplace for extended periods of time) was present or not. It should also be noted that in the more traditional house type many functions, such as preparation and eating of food and social gatherings often take place outside. Further investigation is required on how modernization influences the various functions

of spaces and where these functions are performed.

6.3.2 Attitudinal modernity

The "attitudinal modernity scale" (Thompson, 1977, 1980b) was used to provide an indication of the subjective values and attitudes of individuals that developed as a result of the modernization process.

Factor analysis revealed the presence of two underlying factors: attitude towards modern science and technology and attitude towards gender and age status.

The modernity scale, after exclusion of items which did not load on the two principal factors, showed good reliability. The validity of the scale was confirmed by intercorrelation with other indexes, for example "the index of the amount of contact with modern models" and with various biographical variables such as geographical area, migrational history and age.

6.3.3 The relationship between "modernity of house" and "attitudinal modernity"

There was a significant positive relationship between the two indexes of modernity, which supported the assumption that some kind of "fit" does exist in the relationship between the attitudinal modernity of people and the modernity of their housing.

An important finding was that some aspects of attitudinal modernity are more strongly related to the modernity of the house than others. Attitudes towards gender and age status were not related to the modernity of the house while attitudes towards modern science and technology were. This finding has implications for future research. It may be beneficial to develop a scale that measures the "modernity of housing attitudes" or "modernity of housing orientation." In this way

the validity of the process of identification of groups in terms of "modernity fit" may be improved.

6.3.4 Factors that moderate the relationship between "modernity of house" and "attitudinal modernity"

The index of contact with the modern model and the index of involvement in design successfully measured the influence of some of the factors (refer to the items of the indexes) in the sociophysical environment which influence or moderate the quality of the relationship between modernity of house and attitudinal modernity (physical/external context). Both these indexes showed good internal consistency, providing some proof for the reliability of the indexes.

Significant positive relationships were found between both the modernity of the house and the attitudinal modernity of the residents (the full scale and the attitudes towards modern science and technology factor) and the level of contact with the modern model. This supported the view that certain life experiences of people influence the relationship between the modernity of the house and the attitudinal modernity of the occupants. People who had more contact with modern models lived in more modern houses and had more modern attitudes. The amount of contact with modern models thus acted as a moderator of the relationship.

The poor correlation between the index of contact and attitudes towards gender and age status indicated that various attitudes change at different rates as a result of acculturation and modernization. Attitudes towards education, technology, city life etc., that are formed and influenced through formal schooling and in developed technological environments such as the workplace and city/town living areas change sooner. Attitudes towards gender and age status are formed and influenced in the privacy of the home environment and therefore show more

resistance to change.

It therefore seems that not all attitudes are equally important to the meaning of home for the occupants. Furthermore, some attitudes change faster than others during the modernization process. Faster changing attitudes toward science and technology may have the result that the use of facilities and materials may change towards the modern norm, resulting in the mostly modern "appearance" of transitional houses. Aspects of design related to the attitude towards gender and age status, however, show resistance to change. The layout and use of internal space are strongly related to rules that govern interpersonal relationships (for example, *hlonipha* practices). These "less visible" aspects of design change at a slower rate. Further research is needed on these topics. An important implication is that, although users may adapt to more modern houses in terms of the technological aspects (such as its construction, material and even appearance) sociocultural aspects of design (for example the use of internal space for various social functions) may not be adjusted as rapidly. People may be satisfied with the house as an entity that provides desired modern facilities and appearance, but may find "living" in the house difficult, for example due to layout that constrains their preferred lifestyle.

The "index of involvement in design" showed no correlation with attitudinal modernity but correlated negatively with modernity of house. The finding that modernity of house and attitudinal modernity do however correlate positively with each other indicated that factors other than involvement in design may also influence the quality of the relationship. These factors may include adaptation to the particular house and the fact that houses may have been chosen.

6.3.5 The concept "Modernity fit" and identification of "fit groups"

Results indicated that various groups of people can be identified successfully in terms of the fit between the modernity of characteristics of their current housing and their attitudinal modernity. Both the cluster analysis and the graphic method of grouping cases resulted in interpretable results. From the analysis of the data it appears that the cluster analysis method delivered superior results.

Significant differences were found between the "fit groups" in terms of the amount of contact with modernizing influences and the amount of control over the physical features of their housing. The modernity fit group classification thus successfully discriminates between people with varying experiences with their sociophysical environment (in terms of contact with modern models, control over the physical features of their housing and in terms of the duration of their stay in a particular house).

6.3.6 "The experience of "home"

The individual's subjective experience of the quality of the relationship was measured with an "Index of experience" that included a number of indicators of experience such as descriptions of cognitive and affective evaluations (likes and dislikes) and behavioural intentions. The "index of experience" failed to provide a reliable measure of the individual's subjective evaluation of the quality of the relationship. The poor performance of the index was related to problems in the construction of the index and the way in which scores were obtained.

To test if the relationship between the modernity of the house and the attitudinal modernity of the occupants (as expressed in various "modernity fit groups") influences experiences of and behaviour towards the housing environment, qualitative analysis

of raw data (descriptive information obtained with various questions regarding evaluations and behavioural intentions) was performed. Results indicated that groups of people, identified in terms of the fit between the modernity of their current housing and their psychosocial modernity (attitudinal modernity), do seem to share similar evaluations of and plans for action regarding their housing. It seems that the various "fit groups" do indeed differ with regard to the physical aspects of design that will satisfy their current housing needs.

6.4 CONCLUSION

There is no clearer example of the challenges being faced by the South African society than the challenges of planning, designing and building living environments. The shortage of housing in the culturally diverse and rapidly changing South African sociocultural context indicates a need for a housing programme in which adequate attention is paid to the maintenance and improvement of balance and harmony in the relationship between the occupants and their housing. "Houses" should be built in such a way that they can become "homes".

Housing surveys that aim to determine "preferences" in housing or "levels of satisfaction" with aspects of housing have many pitfalls, the most important of which is that, as the results of this study show, people will never be completely satisfied with their housing. A state of complete balance, harmony or fit in the relationship will possibly never be achieved. The question that needs to be answered is "how to optimize the quality of the relationship between people and their housing."

In South Africa house designs should be appropriate to the housing needs and values of a variety of future occupants. In the design of housing for whole communities, as is currently required in South Africa, it is important to pay attention to the psychosocial differences between people. The social health of the larger society depends on the success with which the

development of various smaller settlements provides physically healthy and socially appropriate living environments.

The importance of involving future occupants themselves in the design process was highlighted by the results of this study. Evidence was found of problems experienced by occupants of "provided house types" that can be related to the sociocultural differences between designers and occupants. Examples include problems with division of space according to gender, such as problems with the privacy of male (lounge) and female (kitchen) domains and the sleeping space of older boys. These and other indications of retention of traditional practices were even found in the most modernized group. These are the kinds of problems that can be avoided through participative design.

The theoretical framework developed in this study shows promise in that it accounts for the differences between various perspectives of the relationship between person and environment. The framework can be shared by social researchers and design professionals and thus creates the potential for increased co-operation, in an integrated research and design process, between these professions. Through co-operation between users, researchers and designers, the applicability gap may be bridged and the quality of design solutions improved.

The proposed theoretical framework was applied in the development of an approach to the determination of "what to design for whom". Although the approach shows promise, it still needs refinement. Based on the theoretical framework and the outcomes of this study, an approach to the determination of "what to design for whom" in the culturally diverse and rapidly changing South African sociocultural context can be summarized as follows.

The aim is to help people achieve a subjective "experience of "home"" by providing house designs that afford the users the opportunity to express a preferred lifestyle and set of values through their use and personalization of the space.

The aim is therefore to achieve balance, harmony or fit in the subjective context of the relationship between person and environment.

The first task is to identify groups of people in terms of the fit between the modernity of their current housing (people with similar kinds of houses) and the modernity of their housing attitudes or orientations (a more appropriate attitudinal modernity scale). This involves an investigation of the shared objective context of the relationship between person and environment.

The second task is to involve representatives from these fit groups in a process of participatory design. During this process particular sociocultural characteristics that pertain to housing can be discussed. Design solutions that account for these housing needs can be formulated by designers and evaluated by the users. During these discussions differences between the perspectives of the participants, and between their perceptions of the "objective" aspects of the design can be expected to become clearer, will have to be discussed and "bridged." This level of investigation involves the perceived objective context of the relationship between person and environment.

The challenge to social researchers and design professionals in South Africa is to apply their knowledge in a way that will make a real difference to the quality of life of the members of this culturally diverse and rapidly changing society. Social researchers and design professionals should combine their efforts in the attempt to provide house designs that can become highly valued sociophysical living environments or "homes" for their occupants. A variety of house designs that will be more appropriate to the housing needs and values of the eventual users, may result from a process where various groups of people, identified in terms of "modernity fit," participate in the design of their housing.

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APPENDIX A: THE INTERVIEW SCHEDULE

GENERAL AND BIOGRAPHICAL INFORMATION

1. House number
2. Name of respondent
Tribe: Ndzundza (1) Manala (2) Hwaduba (3)
Isibongo name (surname):
Western name:
Ndebele name:
Regiment name: (Ndanga)
3. Language in which interview is conducted
Afrikaans (1)
English (2)
Ndebele (3)
4. House type
Traditional (1)
Temporary (2)
Provided (3)
Self-help (4)
Modern (5)
5. Migrational history
 - 5.1 Where were you born (Husband)
Rural farming area (1)
Black rural town (2)
White rural town (3)
Informal urban area (4)
Formal urban area (5)
 - 5.2 Where were you born (Wife)
Rural farming area (1)
Black rural town (2)
White rural town (3)
Informal urban area (4)

Formal urban area (5)

5.3 For how many years have you lived in this house?

5.4 Do you plan to move away from here?

Yes ____ (1) No ____ (2)

If yes, where to?

Rural farming area (1)

Black rural town (2)

White rural town (3)

Informal urban area (4)

Formal urban area (5)

Why?

6. Do you like living here in _____?

Yes ____ (1) No ____ (2)

Why?

BIOGRAPHICAL TABLE - MOST SENIOR MEMBER OF THE HOUSEHOLD

Name

Type

Gender

Age

Relationship

Job

Place of work

Income per month

Qualifications

PHYSICAL PROPERTIES OF THE HOUSE AND PLOT

May I take a photograph of the people and the house?

May we talk about the plot first?

1. Draw a sketch of the plot and all noticeable features.
(Note the following: shape and size, position of house and

plot, type of fence and gates and positions, all signs of use of outside living space, for example a shade tree, rubbish dump; children's play area; outside cooking area or area used for some kind of home craft.)

EVALUATION OF THE PLOT

1. Use of outside space

1.1 Can you please show me the different parts of the plot and tell me about them?

(Indicate on the sketch where front/back, children/adult. family/strangers, and clean/dirty boundaries are drawn by the residents.)

1.2 What things are usually done in each part?

a. Part: _____

Activity:

b. Part: _____

Activity:

c. Part: _____

Activity:

d. Part: _____

Activity:

3. What do you like most about the plot?

4. What do you like least about the plot?

EVALUATION OF THE HOUSE

May we please look at the inside of the house now?

Draw a separate sketch of the inside layout of the house and indicate the size and function of each room.

1. What do you like most about the house?

Please explain.

2. What do you like least about the house?

Please explain.

3. Is there anything that you would like to change about your house?

Yes (1)

No (2)

Please explain.

4. Is there anything that prevents you from making the changes you want to?

Yes (1)

No (2)

What?

5. Have you made any changes to this house before?

Yes (1)

No (2)

What/Why?

6. How do you feel about the changes you have made?

Satisfied (1)

Uncertain (2)

Dissatisfied (3)

7. If you have to build a new house now, will it look different to this one?

Yes (1)

No (2)

In what way will it be different?

8. Facilities (Mark on the list the facilities found at the house)

Water

Where do you get water from?

- | | |
|---------------------------|-----|
| River/stream | (1) |
| Communal well or borehole | (2) |
| Communal tap | (3) |
| Well on plot | (4) |
| Borehole on plot | (5) |
| Tap on plot | (6) |
| Tap inside house | (7) |
| Hot water inside house | (8) |
| Other | (9) |

Toilet facilities

- | | |
|----------------------------|-----|
| No toilet | (1) |
| Communal pit latrine | (2) |
| Pit latrine on plot | (3) |
| Flush toilet outside | (4) |
| Flush toilet inside | (5) |
| More than one flush toilet | (6) |

Sewage

- | | |
|--------------|-----|
| None | (1) |
| Pit system | (2) |
| Sewage pipes | (3) |

Electricity

- | | |
|-----------------------------|-----|
| No electricity supply | (1) |
| Street lights only | (2) |
| Lights only | (3) |
| Complete electricity supply | (4) |

FORM FOR EVALUATION OF LIVING SPACE

(Must be completed for each separate room)

House number

1. What is this place called?
2. Whose place is this?

3. Who uses it besides this person?
4. What do you like most about this place?
Please explain.
5. What do you like least about this place?
Please explain.
6. What is usually done in this place?
 - 6.1 Activity: _____
Who may be present, or look or listen when that is happening?
Who may not be present, or may not see or hear while it is happening?
 - 6.2 Activity: _____
Who may be present, or look or listen when that is happening?
Who may not be present, or may not see or hear while it is happening?
7. Is there anything that you would like to change about this place?

Yes	(1)
No	(2)

Please explain.
8. Is there anything that prevents you from making the changes you want to?

Yes	(1)
No	(2)

What?
9. Have you made any changes to this place before?

Yes	(1)
No	(2)

What?
10. How do you feel about the changes you have made?

Satisfied	(1)
Uncertain	(2)
Dissatisfied	(3)

FORM FOR THE EVALUATION OF PHYSICAL SPACE

1. Name of space

2. Material used:

Walls Material

Roof Material

Ceiling Material

Floor Material

3. Dimensions:

 floor area

 ceiling height

 window size

4. Openings:

 number of windows

 number of outside doors

 number of inside doors

 inside openings without doors

5. List the furniture and other important objects in the room.

APPENDIX B: EXAMPLES OF PHOTOGRAPHS USED FOR ANALYSIS

EXAMPLE B1: PHOTOGRAPHS OF TRADITIONAL HOUSE TYPE



EXAMPLE B2: PHOTOGRAPHS OF TRANSITIONAL (TEMPORARY) HOUSE TYPE



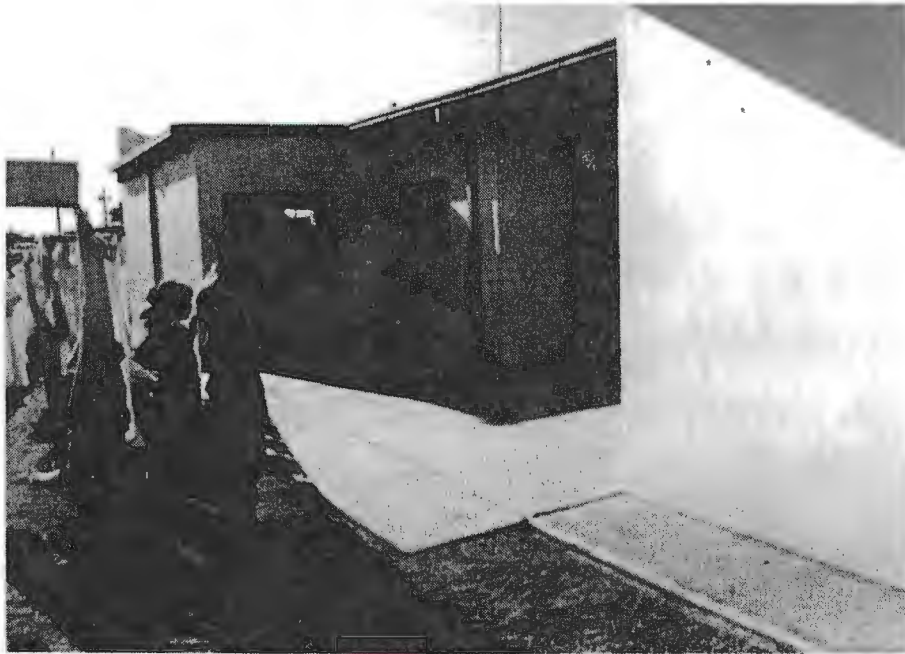
EXAMPLE B3: PHOTOGRAPHS OF TRANSITIONAL (SELF-HELP) HOUSE TYPE



EXAMPLE B4: PHOTOGRAPHS OF TRANSITIONAL (PROVIDED) HOUSE TYPE

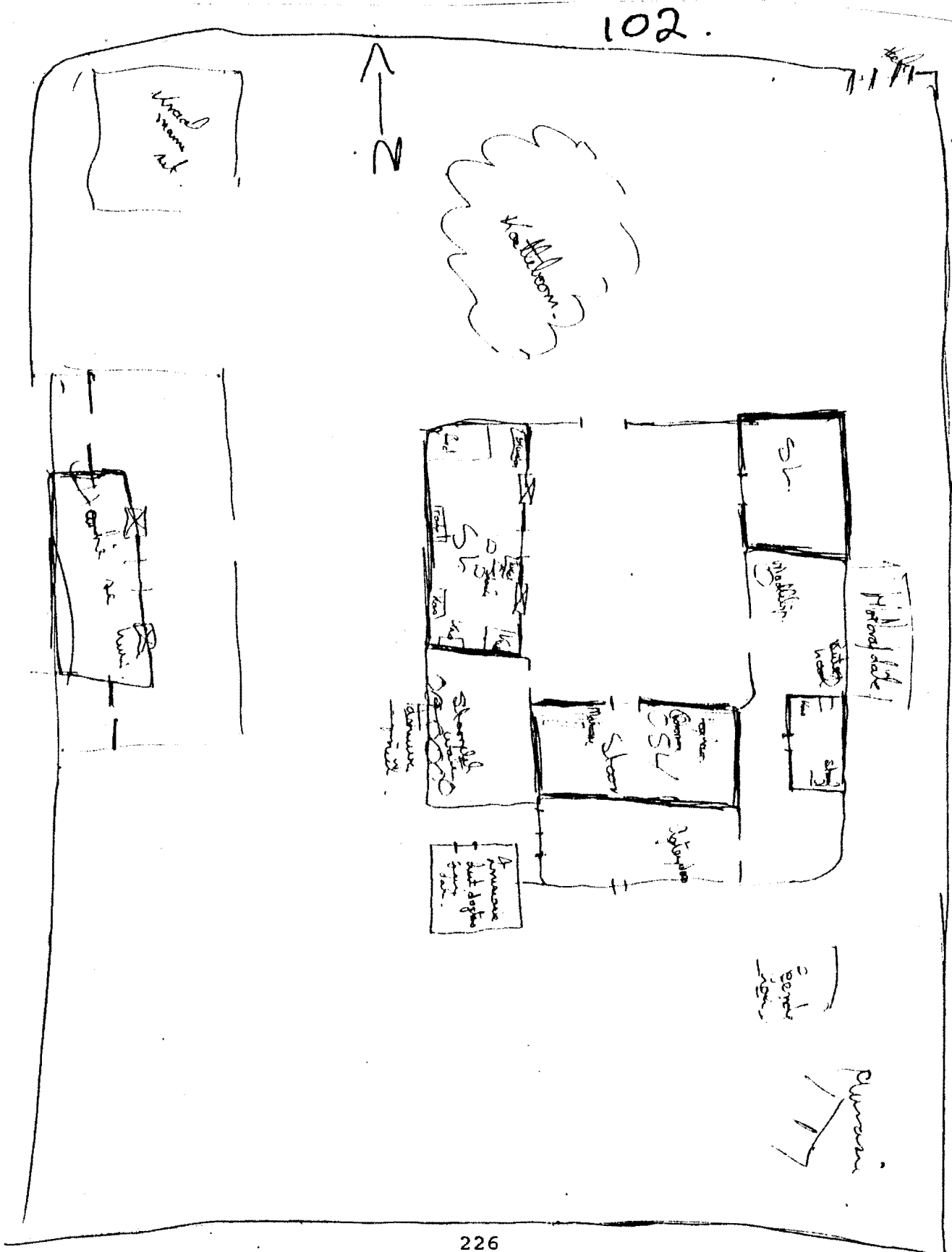


EXAMPLE B5: PHOTOGRAPHS OF MODERN HOUSE TYPE

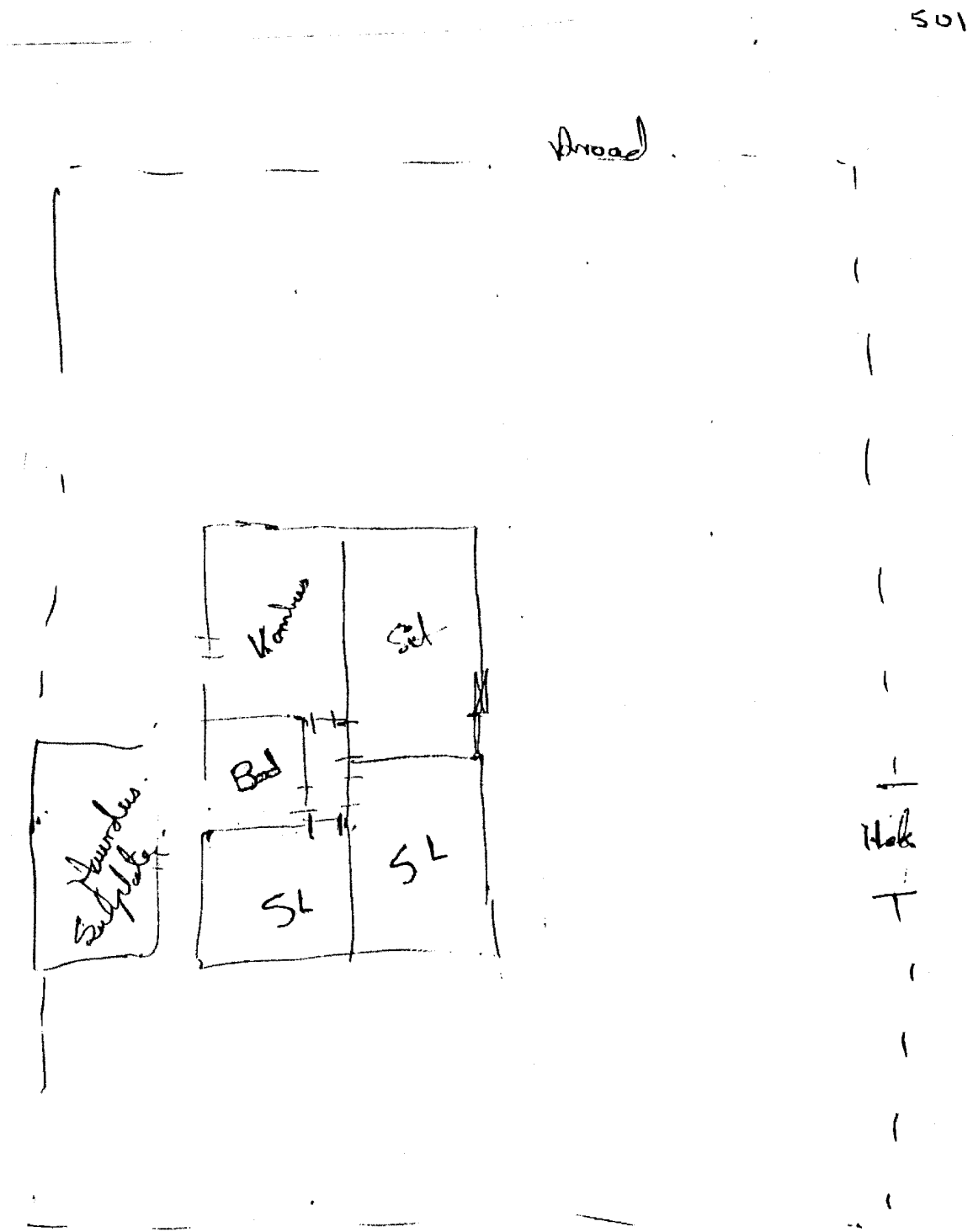


APPENDIX C: EXAMPLES OF SKETCH PLANS

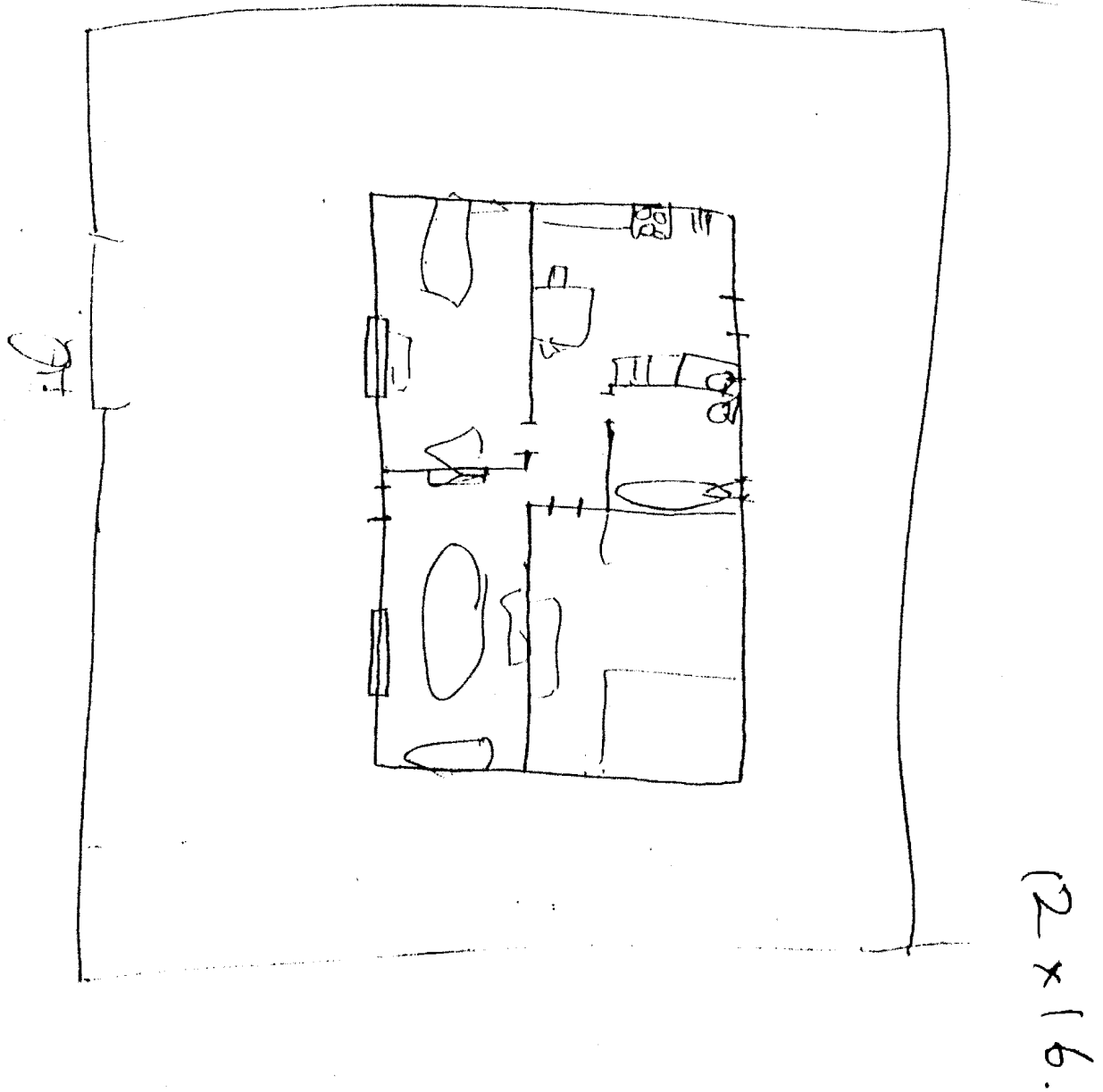
EXAMPLE C1: SKETCH PLAN OF TRADITIONAL HOUSE TYPE



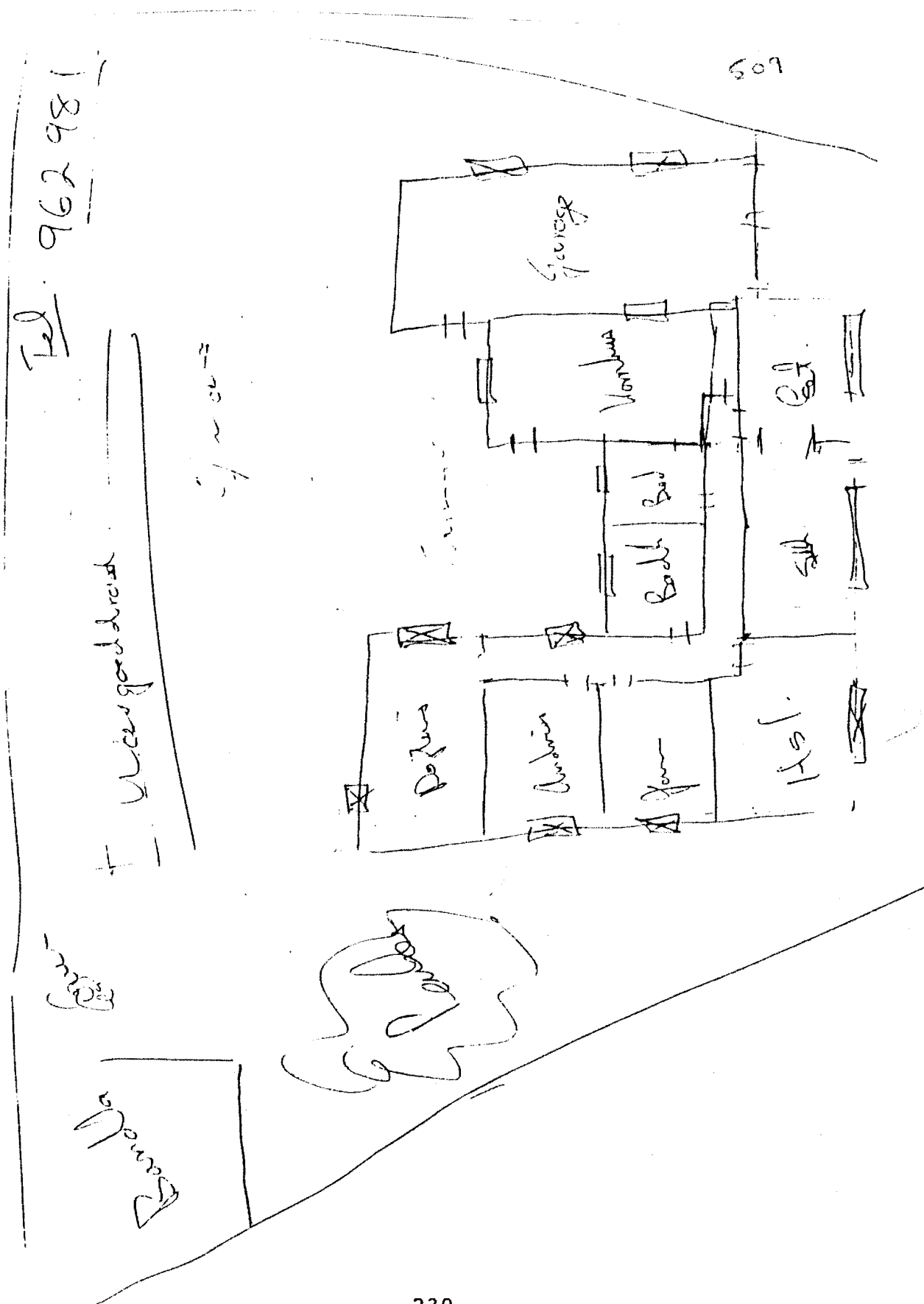
EXAMPLE C3: SKETCH PLAN OF TRANSITIONAL (SELF-HELP) HOUSE TYPE



EXAMPLE C4: SKETCH PLAN OF TRANSITIONAL (PROVIDED) HOUSE TYPE



EXAMPLE C5: SKETCH PLAN OF MODERN HOUSE TYPE



APPENDIX D: THE ATTITUDINAL MODERNITY SCALE

Interviewer note: Briefly explain the modernization project and tell the interviewee that you wish to discuss his ideas about certain subjects. The interviewee must not feel obliged to answer these questions.

S1 You must have known people who promised to do certain things (e.g. come and help you repair a fence) and then failed to keep those promises. How do you react to such people?

They do not worry me at all	1
I find them a little annoying	2
I get very angry with them	4

S2 How do you feel about the freedom of women to do things like working outside the home? Is that changing in any way?

Change not perceived	1
Yes - faster than it should be	2
Yes - slower than it should be	3
Just right	4

S3 A person cannot be responsible and reliable all the time. Some people say that an unreliable person should learn to be reliable at all times. Should one excuse a person who is not reliable at all times?

Always	1
Often	2
Sometimes	3
Never	4

S4 Which of the following is more true of you?

I would prefer to live in the country (i.e. rural area).	1
I would prefer to spend half my time in the country and half in the city.	2

- I would prefer to live my life in
the big city. 4
- S5 Who do you think is entitled to more status in the
community?
A man of royal birth but with little schooling 1
A man of ordinary family background, but who is well
educated 4
- S6 Some people when holding a function (e.g. a party) get very
annoyed when their guests are late. Others do not seem to
worry about late arrivals. If you were holding a party or
reception, would you
Not be worried by people who arrive late? 1
Get annoyed with people who arrive late? 4
- S7 Some say that accidents are due mainly to bad luck or
witchcraft. Others say accidents can be prevented by
proper care. Do you think accidents happen
Because of bad luck/witchcraft 1
Because of lack of care 4
- S8 Suppose that in a factory or office both men and women did
exactly the same work, do you feel they should be paid
exactly the same wage?
No 1
Yes, it should be equal 4
- Why do you feel this way?
- S9 Do you think that a person, before making a major decision,
should first discuss the matter with his senior kinsmen?
Yes, always 1
Yes, but only sometimes 3
No 4
Why do you feel like this?

S10 A man working in a factory one day found that this supervisor had been promoted to a higher position and had been replaced by a woman. She was just as competent as her predecessor, but the man did not like working under a woman, so he asked for a transfer to another department of the factory where there were men in supervisory positions. What would you have done had you been in the same position as this man?

The same as he did, i.e. asked for a transfer
so as to be under male supervision

1

Would have stayed in the same job, but would
not have been happy working under a woman

2

Stayed in the same job and not have worried
whether the supervisor was a man or a woman

4

S11 Some people say it is the duty of the wife to keep the house clean and look after the children. Others say that a husband should help his wife by doing things around the house, such as occasionally caring for the children, doing some heavier cleaning, etc.

With which point of view do you agree?

Wife must keep the house clean

1

Husband should help

4

S12 Some say that getting ahead in life depends entirely on destiny. Others say it depends on a person's efforts. What is your opinion?

Destiny

1

Own efforts

4

S13 Do you think it is necessary for a young man/woman to have the same ideas and opinions as his/her parents?

In all important matters

1

In the majority of matters

2

In certain matters

3

In nothing

4

Why do you feel this way?

S14 Here are two points of view -

Man will never fully understand what causes things like droughts, diseases.

Man will some day fully understand what causes things like droughts, diseases.

Which one do you agree with most?

Never fully understand causes 1

Will understand causes 4

S15 Would you be prepared to move to a distant city such as (Durban/Cape Town/Johannesburg) in order to live twice as well there as you do here?

No 1

Yes 4

Why?

S16 If a person must choose between a job he likes, and a job his parents prefer for him, which should he choose?

Job his parents prefer 1

Job he prefers 4

Why

S17 Do you think it is a bad thing if people who are related (e.g. uncles/nephews/cousins) hold different views on important subjects like politics or religion?

Yes 1

No 4

Why do you feel this way?

S18 Do you think that, in order to be successful in life, it is -

Much more important to have good luck? 1

Much more important to make plans? 4

- S19 When we interview, do you think we should:
 Let the husband (family head) speak for the whole family? OR 1
 Should we also be sure to obtain the wife's opinions? 4
- S20 Which sources of information do you trust most in finding out news about what goes on in the world?
 Local leaders of the community (chiefs) 1
 Friends 2
 Radio 3
 Newspapers 4
 Why would you trust this source most?
- S21 If a married couple have one son and one daughter, do you think -
 The son should be given more educational opportunities than his sister? 1
 The son and daughter should be given the same educational opportunities? 4
- S22 In this question I want you once again to tell me what you think should be done.
 A man and his wife have several children. This is as many as they can afford. They do not want any more. Suppose a doctor could give the wife a new kind of pill/medicine, which would prevent the wife having more children for as long as she took the pill/medicine, but would not otherwise change her in any way. Would it be right for her to take such a pill/medicine?
 No 1
 Yes 4
- S23 Suppose a young man has, with difficulty, managed to save R20 or R30. Now his first cousin comes to him and tells him that he needs money badly as he is unemployed. How much obligation do you think the working man has to share

- his savings with this first cousin?
- | | |
|--------------------------|---|
| A strong obligation/duty | 1 |
| Only a little obligation | 2 |
| No obligation | 4 |
- S24 Do you think it objectionable/incorrect for men and women to work together (e.g. in same factory, office, house, side by side in the field)?
- | | |
|-----|---|
| Yes | 1 |
| No | 4 |
- S25 Learned men at universities are studying such things as what determines whether a baby is a boy or a girl, and how it is that a seed turns into a plant.
Some say that man should not inquire into such things as they are the work of God.
Others say that these studies will benefit man greatly.
Which opinion do you agree with more?
- | | |
|---|---|
| Man should not inquire into such things | 1 |
| These studies will benefit man | 4 |

APPENDIX E: INDEX OF INVOLVEMENT IN DESIGN

1. Who is the owner of the house?
(Determine if the house is rented, leased or owned) (loja)
2. Who is the owner of the land this house is built on?
Self (2)
Other _____ (1)
3. Do you own another house or land away from here, for example where you keep lands or cattle?
Yes (2)
No (1)
4. Which house do you regard as your permanent home?
This (2)
Other (1)
5. Who designed this house or decided how this house must look?
Self (2)
Other (1)
6. Who built this house?
Self (2)
Other (1)
7. Who supervised or watched over the building of this house?
Self (2)
Other (1)
8. If you want to build an extra room on to the house, may you do so or do you need to get permission from anyone?
May build (2)
Needs permission (1)

From whom?

9. If you want to make the house bigger by adding an extra room, will you be able to find the money to do so? If yes, where?

Yes (2)

No (1)

10. If you have some extra money, will you spend it on improvements to your house?

Yes (2)

No (1)

11. Have you made any improvements to your house since you started living here?

Yes (2)

No (1)

APPENDIX F: INDEX OF AMOUNT OF CONTACT WITH MODERN MODELS

1. How many years have your family spent living in each of the following:

Rural farming area	Number of years __ (1)
Black rural town (i.e. Homeland)	Number of years __ (2)
White rural town	Number of years __ (3)
Informal urban settlement	Number of years __ (4)
Formal urban township	Number of years __ (5)

2. Economic activities:

- 2.1 How many years have you (husband) spent working in each of the following:

Rural farming area	Number of years __ (1)
Black rural town (i.e. Homeland)	Number of years __ (2)
White rural town	Number of years __ (3)
Informal urban settlement	Number of years __ (4)
Formal urban township	Number of years __ (5)

- 2.2 How many years have you (wife) spent working in each of the following:

Rural farming area	Number of years __ (1)
Black rural town (i.e. Homeland)	Number of years __ (2)
White rural town	Number of years __ (3)
Informal urban settlement	Number of years __ (4)
Formal urban township	Number of years __ (5)

- 2.3 Where do you do most of your shopping?

In town	(4)
At a local store	(1)

2.4 How often do you buy goods from a city store?

- | | |
|------------------------|-----|
| Never | (1) |
| Less than once a month | (2) |
| Once a month | (3) |
| Once a week | (4) |
| Daily | (5) |

3. Media contact:

3.1 Does anybody in your family own a radio?

- | | |
|-----|-----|
| Yes | (5) |
| No | (1) |

3.2 How often do you listen to the radio?

- | | |
|------------|-----|
| Very often | (5) |
| Often | (4) |
| Sometimes | (3) |
| Seldom | (2) |
| Never | (1) |

3.3 Does anyone in your family own a television set?

- | | |
|-----|-----|
| Yes | (5) |
| No | (1) |

3.4 How often do you watch television?

- | | |
|------------|-----|
| Very often | (5) |
| Often | (4) |
| Sometimes | (3) |
| Seldom | (2) |
| Never | (1) |

4. Personal contact:

4.1 Do you have any family or close friends that stay in the city?

- | | |
|-----|-----|
| Yes | (5) |
| No | (1) |

Where do they stay?

Rural town	(2)
Informal settlement city	(3)
Formal urban	(5)

4.2 How often do you or members of your family visit people in the city?

Stay in city	(5)
Often	(4)
Sometimes	(3)
Seldom	(2)
Never	(1)

4.3 How often are you visited by friends or family from the city?

Stay in the city	(5)
Often	(4)
Sometimes	(3)
Seldom	(2)
Never	(1)

4.4 Does any member of the household do domestic work for a white family?

Yes	(5)
No	(1)

APPENDIX G: INDEX OF MODERNITY OF HOUSE

1. Layout of rooms:

- (3) Attached
- (2) Mixed
- (1) Detached

2. Physical appearance:

- (3) Modern
- (2) Mixed
- (1) Traditional

3. Walls:

- (3) Factory-made brick blocks, cement or clay bricks.
- (2) Corrugated iron, concrete panels
- (1) Soil over wooden frame, soil and dung bricks, soil with cement plaster.

4. Roof:

- (3) Corrugated iron, corrugated asbestos, cement tile
- (2)
- (1) Grass

5. Ceiling:

- (3) Asbestos cement
- (2)
- (1) No ceiling

6. Floor:

- (3) Wall to wall carpets or tiles.
- (2) Cement and loose carpet over cement.
- (1) Soil and soil and dung mix.

Facilities

7. Water, nearest source:

- (3) Taps or hot water in house
- (2) Communal tap or tap on plot

(1) River, well or borehole

8. Toilet facilities

(3) Flush toilet inside

(2)

(1) Pit latrine, outside toilet

9) Sewage

(3) Piped

(2)

(1) None

10. Electricity

(3) Full electrical supply, own generator

(2) Street lights alone

(1) None

This index adds up to a maximum total of 30 and a minimum of 10, with the higher score indicating greater modernity of the house.